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# STONE AGE CULTURES OF CENTRAL INDIA

*(Report on the Excavations of Rock-shelters at Adamgarh, Madhya Pradesh)*

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Publication DC : M–181

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# STONE AGE CULTURES OF CENTRAL INDIA

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# FOREWORD

The present monograph contains the report of the excavation carried out by Dr. Joshi in the natural rock-shelters situated on the Narmada river in Central India. The excavation has revealed a succession of cultures from Early Stone Age to Late Stone Age (Mesolithic) through Middle Stone Age. Besides, it has yielded considerable evidence on the ecology at this prehistoric habitation. Although this work was carried out by Dr. Joshi during his service in the Archaeological Survey of India he has elaborated it by his experience gained at the Deccan College and visits abroad. It is perhaps the first detailed report on the excavation of the Stone Age rock shelters in India. When the Deccan College thought of its publication the Director General of the Archaeological Survey of India most graciously gave the permission to print it and also made available to the College all illustrations included in this monograph. The present monograph is thus an outcome of the joint efforts of these two leading organizations pursuing research in prehistory in India.

A. M. GHATAGE,
*Director*

Deccan College, Poona.

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# PREFACE

Very few regions in the Indian sub-continent can match the rich prehistoric cultural heritage of Central India. Environmentally also this region appears to have been more favoured from prehistoric times, and it is no wonder therefore, that almost all the river valleys in Central India have yielded relics of man through the ages.

Natural rock shelters occur in large numbers scattered throughout the Vindhyan hills of Central India and quite a few of them contain habitational deposits. A small group of such shelters is situated on Adamgarh hill about 2 km south of the Narmada river at Hoshangabad. The situation of this hill was thought likely to be advantageous for tracing the cultural sequence and stratigraphy in the undisturbed deposits in rock shelters. Besides, here was the facility for attempting precise correlation of the sections exposed in the excavations in rock-shelters with those on the Narmada river between Hoshangabad and Narsingpur, the two well-known Stone Age localities.

Recently a large group of rock-shelters has been discovered at Bhimbetka situated not far from Adamgarh. Excavations are in progress here and it will take time for the detailed results to appear in print. A comprehensive account of the rock-shelter paintings from Madhya Pradesh which includes those from Adamgarh and Bhimbetka has been published by Dr. V. S. Wakankar of Viram University, Ujjain.

I had conducted the excavation at Adamgarh rock-shelters in 1961, when I was Superintending Archaeologist of the Prehistory Branch of the Archaeological Survey of India with the assistance of Sri M. D. Khare, (now) Superintending Archaeologist, Temple Survey Project, Archaeological Survey of India, Bhopal.

This monograph contains the details of excavation and a typological study of the Stone Age artefacts and other antiquities recovered therein. Sri. M. D. Khare, has very kindly written the report on the pottery and other antiquities recovered in the excavation.

Unfortunately the publication of this report has been long delayed due to some unavoidable circumstances. I therefore felt delighted when Dr. A. M. Ghatage, Director of the Deccan College approved its publication by the college. Sri M. N. Deshpande, Director General and Sri B. K. Thapar, Additional Director General of the Archaeological Survey of India not only very kindly permitted me to publish this work but also agreed to associate with it. Prof. H. D. Sankalia and Prof. S. B. Deo also showed great interest in its publication. I take this opportunity to express my deep sense of gratitude to all of them.

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During the excavation and subsequently in the preparation of drawings and photographs, the staff of the Prehistory Branch of the Survey, Nagpur extended fullest co-operation. I must make a special mention of Sri B. P. Bopardikar, the then Technical Assistant in the Branch who helped me in the analysis of excavated material. I always had the pleasure of discussing various aspects of this work with Dr. K. D. Banerjee, my colleague and now the Superintending Archaeologist of the Prehistory Branch. My sincere thanks are due to them.

In 1968 my friends Drs. Raymond and Bridget Allchin helped me to obtain the Overseas Visiting Fellowship at Churchill College, Cambridge, U.K. This gave me an opportunity to study at first hand the Sohan pebble tool collection at Cambridge. It had a direct bearing on the study of similar tools occurring in the Narmada Valley and also several of the other rivers in Peninsular India to which de Terra and Paterson had made specific reference regarding their identity with the tools of the Soan area (now in Pakistan). I was also greatly benefitted from the study of the rich Mesolithic collections of Prof. J. G. D. Clark, who also showed keen interest in Indian Mesolithic material. My grateful thanks are due to the authorities of Churchill College and friends at Cambridge.

The final manuscript of this monograph was carefully seen by Dr. (Miss) S. Guzder, Senior Fellow at the College and I am thankful to her.

Sri K. Joshi and Sri M. S. Latkar of SMS Letter Press completed the blocks and printing in record time and my sincere thanks are due to them.

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# CONTENTS

FOREWORD .. .. .. v

PREFACE .. .. .. vii

ILLUSTRATIONS .. .. .. xi

1. GENERAL .. .. .. 1

2. EARLY AND MIDDLE STONE AGE

(i) Stratigraphy .. .. .. 10
(ii) Raw material and technique .. .. 13
(iii) Early Stone Age Industries .. .. 14
(iv) Typology and description of illustrated specimens .. .. .. 17
(v) Middle Stone Age Industries .. .. 34
(vi) Typology and descriptions of illustrated specimens .. .. .. 35

3. LATE STONE AGE (MESOLITHIC)

(i) The site and its stratigraphy .. .. 40
(ii) Raw material .. .. 45
(iii) The Microlithic Industries .. .. 45
(iv) Typology and description of illustrated specimens .. 46

4. DISCUSSION

(i) Stratigraphy .. .. .. 72
(ii) Early and Middle Stone Age Industries .. 77
(iii) Microlithic Industries .. .. 78

5. CHRONOLOGY .. .. .. 82

6. POTTERY AND OTHER ANTIQUITIES .. 85
(by Sri. M. D. Khare)

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# ILLUSTRATIONS

**TEXT FIGURES**


| | | Page |
|---|---|---|
| 1. | Adamgarh and adjoining region | 2 |
| 2. | Sketch plan of Adamgarh hill showing rock-shelters and excavated trenches .. | 5 |
| 3. | Section of the trench ADG-3 .. | 6 |
| 4. | Section of the trench ADG-8 .. | 7 |
| 5. | Section of the trench ADG-9 .. | 8 |
| 6. | Schematic section across Adamgarh hill .. | 11 |
| 7. | Section of the trench ADG-6 .. | 16 |
| 8. | Section of the trench ADG-1 .. | 41 |
| 9. | Section of the trench ADG-2 .. | 43 |
| 10. | Late Stone Age : Points .. | 48 |
| 11. | Late Stone Age : Points .. | 51 |
| 12. | Late Stone Age : Borers and Awls .. | 53 |
| 13. | Late Stone Age : Triangles, Trapezes and Tranchets .. | 55 |
| 14. | Late Stone Age : Core-scrapers and Flake-scrapers .. | 58 |
| 15. | Late Stone Age : Flake-scrapers .. | 60 |
| 16. | Late Stone Age : Burins .. | 62 |
| 17. | Late Stone Age : Blades .. | 65 |
| 18. | Late Stone Age : Cores .. | 68 |
| 19. | Late Stone Age : .. | 70 |
| 20. | Adamgarh Excavation : Pattery types .. | 82 |
| 21. | Adamgarr Excavation : Pottery types .. | 87 |

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## PLATES


1. Adamgarh : General view ..
2. Adamgarh rock shelers ..
3. Section of debris containing Early Stone Age tools ..
4. Adamgarh excavation in progress ..
5. Early Stone Age tools : Handaxes ..
6. Early Stone Age tools : Handaxes ..
7. Early Stone Age tools : Cleavers ..
8. Early Stone Age tools : Points and Flakes ..
9. Early Stone Age tools : Flakes and Scrapers ..
10. Early Stone Age tools : Choppers ..
11. Early Stone Age tools : Choppers ..
12. Early Stone Age tools : Choppers and Cores ..
13. Middle Stone Age tools : Borers and Points ..
14. Middle Stone Age tools : Scrapers ..
15. Middle Stone Age tools : Flakes ..
16. Adamgarh excavation : Beads ..
17. Adamgarh excavation : Stone objects ..
18. Adamgarh excavation : Iron objects ..
19. Adamgarh excavation : Bangles ..

20a. Adamgarh excavation : Coin ..

20b. Adamgarh excavation : Perforated disc ..

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# 1. GENERAL

The Narmada river at Hoshangabad, (77° 45′E, 22° 45′N) District Hoshangabad, Madhya Pradesh, in Central India, forms the boundary between two distinct morphological features. To the north of this river is the agglomeration of scarps and dissected tablelands of the Vindhyan Hills, and to the south for about 25 km stretch is an alluvial peneplain composed mostly of black cotton-soil interspersed here and there by isolated knobs and low stony ranges. One of the latter, a low isolated hill, lying 2 km south of Hoshangabad, called Adamgarh, has been renowned for its stone quarries (Fig. 1). Its archaeological interest was first noticed in 1922 by Manoranjan Ghosh[1]. However, no artefacts of great antiquity were discovered from here until the year 1935, when De Terra with Teilhard de Chardin visited the site in connnection with their palaeolithic studies on the Narmada river at Hoshangabad. From the three different localities on this hill they recovered palaeolithic tools from the deep pockets filled with laterite soil 12 to 15 m below the hill surface on the eastern slope. These pockets had been exposed by quarrying operations. De Terra[2] distinguished two types in these soil pockets : "One kind is filled with primary laterite which is free from implements; the other (tool-bearing) shows rewashed laterite in which angular pieces of iron oxide and laterite are mixed with quartz and red sandy silt"'.

Commenting further on the tool-bearing deposit he stated[3] : "The presence of rewashed laterite with implements in Central India was hitherto unknown and is of interest in view of the wealth of early palaeolithic hand-axe cultures represented in similar deposits near Madras. It indicates also that such ancient soils may be widely distributed in the adjoining hills, where fan deposits cover the flanks of the ancient alluvial plain".

The tool collection made by De Terra included "a much rolled core hand-axe of nondescript type" from rewashed laterite and : "an assemblage of three crude Abbevillian-like hand axes, one large flake with edge trimming, one chopper of early Soan type, and two large flakes from a hollow, 2 feet beneath the surface of ancient red soil on the hill-top about 250 yards northeast of the rock shelter". In the talus near the southern hill slope were found five discoidal cores (one primitive tortoise core), one flat-bottomed, steep-sided pointed tool and two pebble choppers, all of which re-

1. Manoranjan Ghosh, *Rock-Paintings and other antiquities of Prehistoric and later times*, Mem. Archaeological Survey of India, No. 24 (Calcutta, 1932).
2. H. De Terra and T. T. Paterson, *Studies on the Ice Age in India and Associated Human Cultures*, (Washington, 1939), p. 322.
3. Ibid. p. 323.

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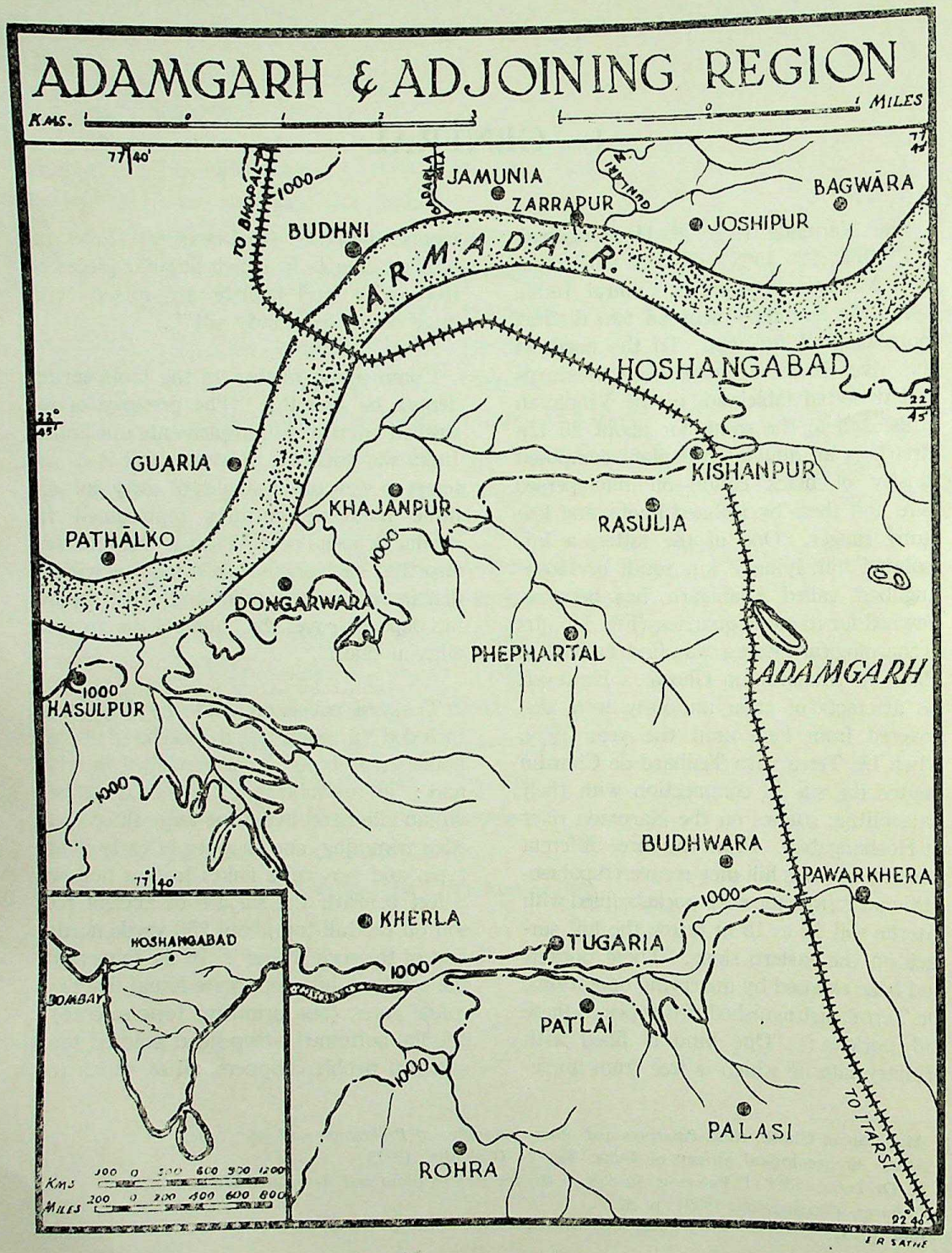


Fig. 1

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semble the early Soan types found in the lower Narbada group with early palaeolithic handaxes"[4].

Following De Terra's discovery of lower palaeolithic implements on this hill the site was explored by several scholars[5]. During these visits a large number of palaeolithic implements were collected from the surface or from the pockets already exposed in the quarry operations. The present writer examined this locality in December, 1953 when a few tools were recovered from the debris adjacent to the rock-shelters. These surface collections were mostly comprised of hand axes, cleavers, discoids, and flakes, showing predominantly Acheulian characters.

De Terra's survey of the Narmada between Hoshangabad and Narsingpur had already brought to light well-stratified fossiliferous Pleistocene beds containing human relics in the form of lithic implements. On the basis of comparative typology and stratigraphy De Terra equated these Narmada beds with those of the Potwar region of West Pakistan, which were earlier investigated by him and thereby attempted to correlate the Stone Age cultures of these two distant regions of the 'Indo-Pakistan' sub-continent, namely the Indian Peninsula and the North-West region. With the exception of one or two comparable sites on the Godavari and Pravara and more recently discovered sites on the Krishna, the tool-bearing and fossiliferous beds of the Narmada are the only known Stone Age localities providing data on the environment and cultural equipment of Early Man in India.

Situated as it is near the very important Stone Age locality of Hoshangabad, the discovery of palaeolithic implements on the hill naturally enhanced the value of Adamgarh site. Moreover, on account of its situation on a higher level than the Narmada flood plain, this hill site is free from direct river action and, therefore, a promising locality for discovering undisturbed evidence of prehistoric habitations (pl. 1) *

In addition to the palaeolithic artefacts, Adamgarh hill has also yielded a rich microlithic assemblage from the black soil. Rock paintings, which are generally rare in India, occur in the rock-shelters of the Adamgarh hill and although most of them are quite late, some of them seem to be of some antiquity. Whether the latter belong to the microlithic period cannot be affirmed at present. Even so, the presence of such paintings depicting primitive art is an additional attraction of the archaeological complex of this hill site.

The Adamgarh hill, seems therefore to have been a much frequented site from the palaeolithic to microlithic (Mesolithic) and even in the Early Historical periods. During earlier periods its convenient situation in the vicinity of a perennial stream met the basic needs of water. The thick forested hills on both bands of the river provided animal and vegetable food. Natural rock-shelters on the hills could have served as emergency shelters in the rainy

4. Ibid, p. 323.
5. (a) H. D. Sankalia, *Prehistory and Protohistory of India and Pakistan* (1974), pp. 113-123.
   (b) A. P. Khatri, Stone Age and Pleistocene Chronology of the Narmada Valley (Central India) *Anthropos*, Vol. 56 (1961), pp. 519-530.

* Illustrations in plates are abbreviated as pl. 1, etc.

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season and also as a defence against wild beasts. The rock fragments in the talus on the escarpment side and the pebbles from the adjoining stream – or river-bed – were within easy reach for manufacturing implements required for hunting animals or digging up edible roots. In the later periods when man acquired the knowledge of cultivation the fertile black soil of the adjacent plain would have been useful to him. Thus, periodically since the earliest prehistoric times this area has provided the basic requirements of food, water and shelter, and been a favoured habitation site. (pl. 2).

With a view to investigating the palaeolithic and microlithic potential of the site and to tracing the evidence for dating the rock-paintings the author undertook excavation at this site in the year 1961-62.

Altogether eighteen trenches, numbered ADG-1 to ADG-18, were laid down, some in the shelters and some in the vicinity thereof (Fig. 2). The maximum depth reached in the excavation was about 3 m in the cave-like shelter (trench ADG-2), below which lies the laterite formation. Of these trenches ADG-3 (Fig. 3) and ADG-4 were excavated at the foot of the cliff in order to ascertain the occurrence of laterite and the existence of any riverain pebble deposit. ADG-5 was likewise dug to trace the extent of the red clay which here directly overlies the local geological formation. ADG-8 (Fig. 4) and ADG-9 (Fig. 5) were laid in the open ground in the black soil to establish its relation with the red-clay and/or laterite. ADG-6 was confined to the palaeolith-bearing deposit. ADG-1 and ADG-12 were located in front of a wall which once formed part of a rock-shelter. ADG-10 lies between the two rock-shelters. ADG-1, ADG-12 and ADG-10 were sunk in the black soil and mainly yielded a microlithic assemblage, although a few palaeoliths were also encountered at the lowest depths, almost on the surface of the rocks exposed in the excavations. ADG-2 has an interesting situation. It is a cave-like shelter and the trenches were laid inside as well as outside it. It revealed the presence of laterite at the bottom, overlain by sandy red clay and angular debris, the latter two deposits yielding respectively Early and Middle Stone Age artefacts[6]. Over these beds rests the dark soil containing microliths. The top layers yielded a few objects of the Early Historical period. Trenches ADG-13 to 18 were taken in the open-shelters, which showed only a very shallow surface deposit resting on the rock outcrops. Only stray microliths were obtained from the surface layers. ADG-11 lies to the west almost at the tip whence begins the western dip-slope of the hill. It contained microliths in the soil which is generally of a reddish colour. ADG-7, was taken inside the south-facing rock-shelter. It yielded Early Stone Age tools in the basal rubble mixed with red clay, Middle Stone Age-type tools in the fragmentary deposit lying immediately above the basal red-clay, and finally microliths in the surface deposits.

6. The International Conference on Asian Archaeology held in 1961 recommended the three-fold classification of the Indian Stone Age viz. Early, Middle and Late Stone Ages as in South Africa. Since in some papers already published on the excavation at Adamgarh this terminology has been followed, in the present monograph also the same pattern has been maintained for the sake of uniformity.

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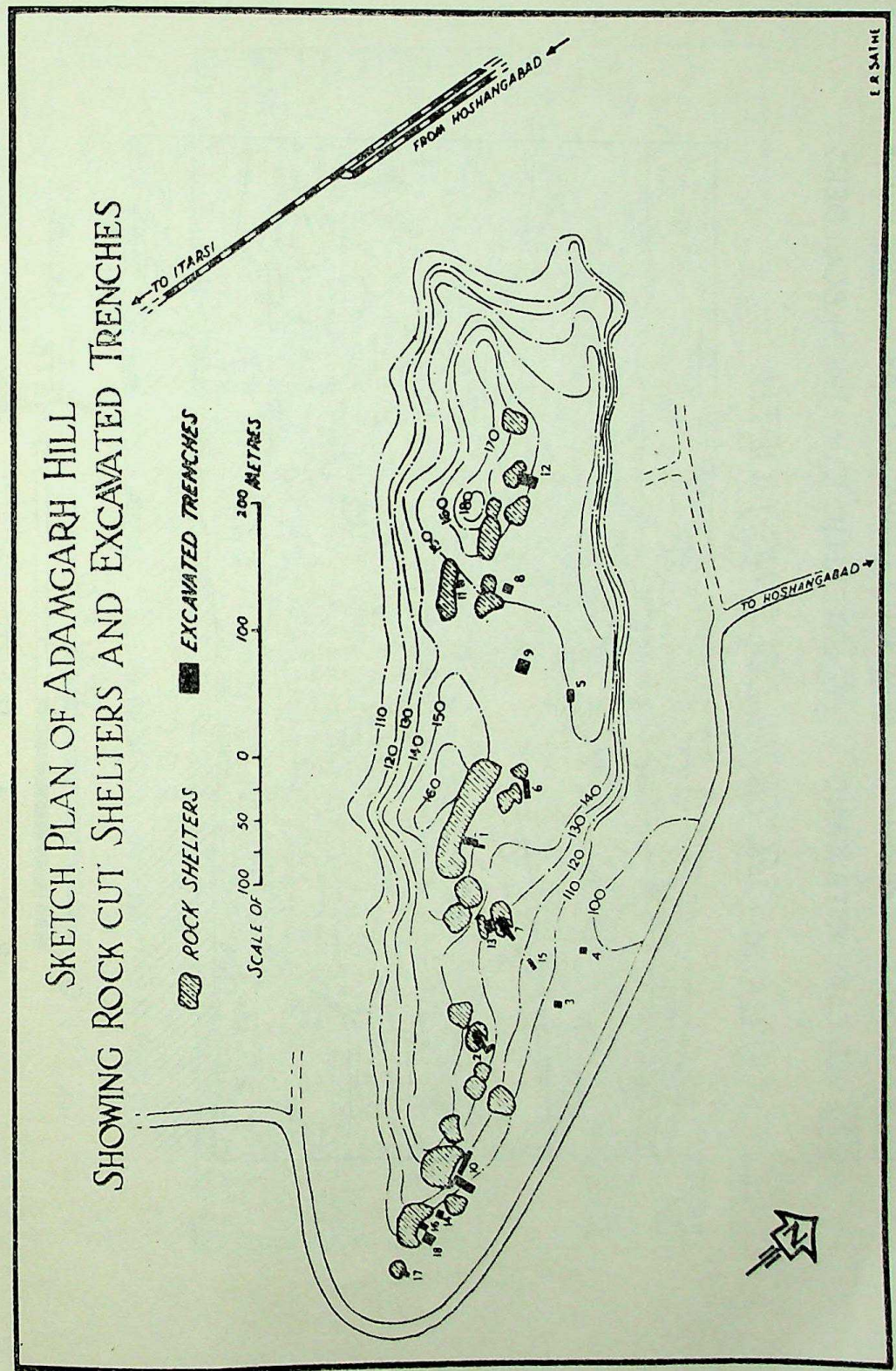


Fig. 2

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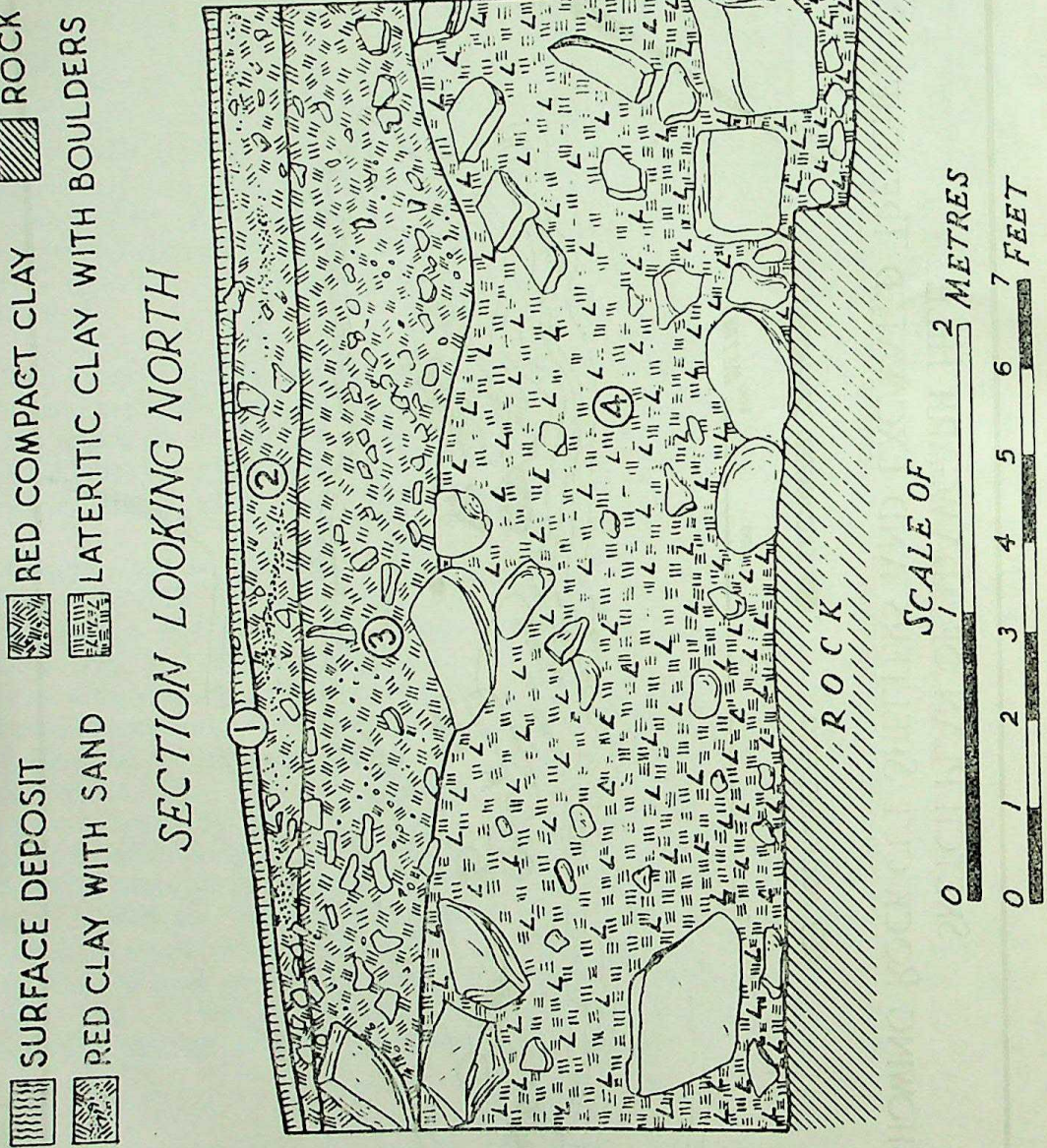


Fig. 3

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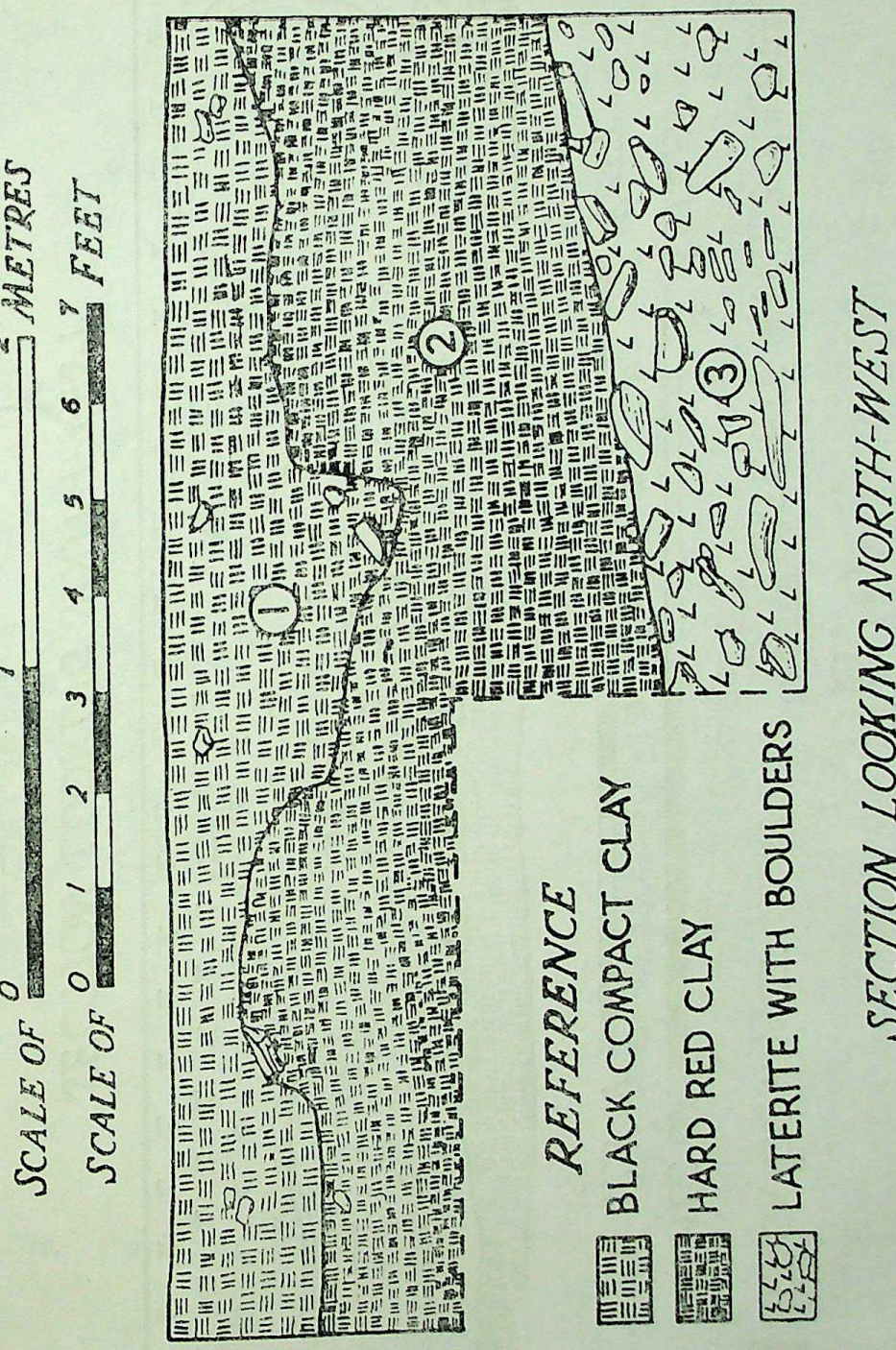


Fig. 4

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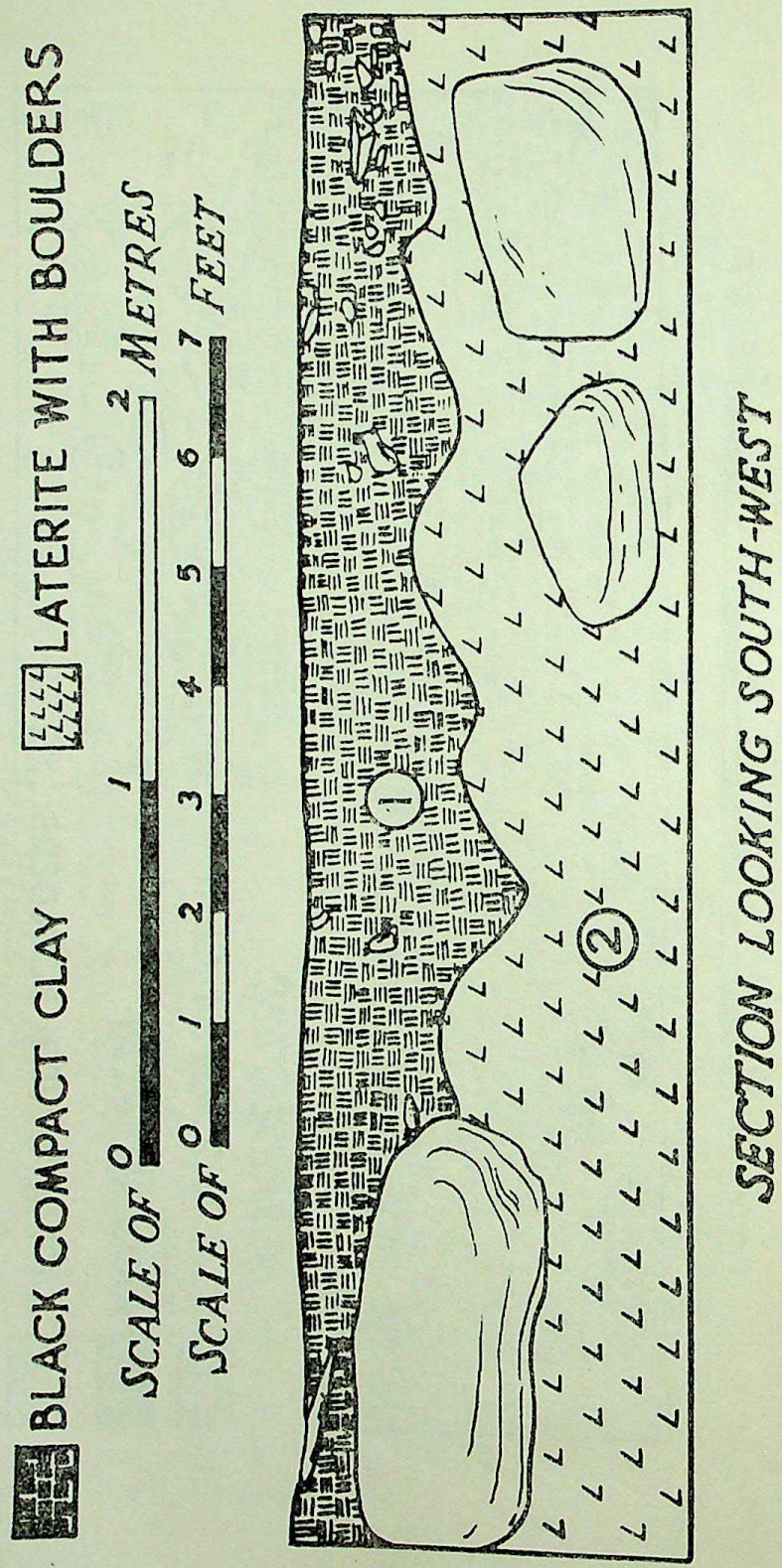


Fig. 5

Plate 1. Adamgarh : General view

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Plate 2. Adamgarh Rock Shelters

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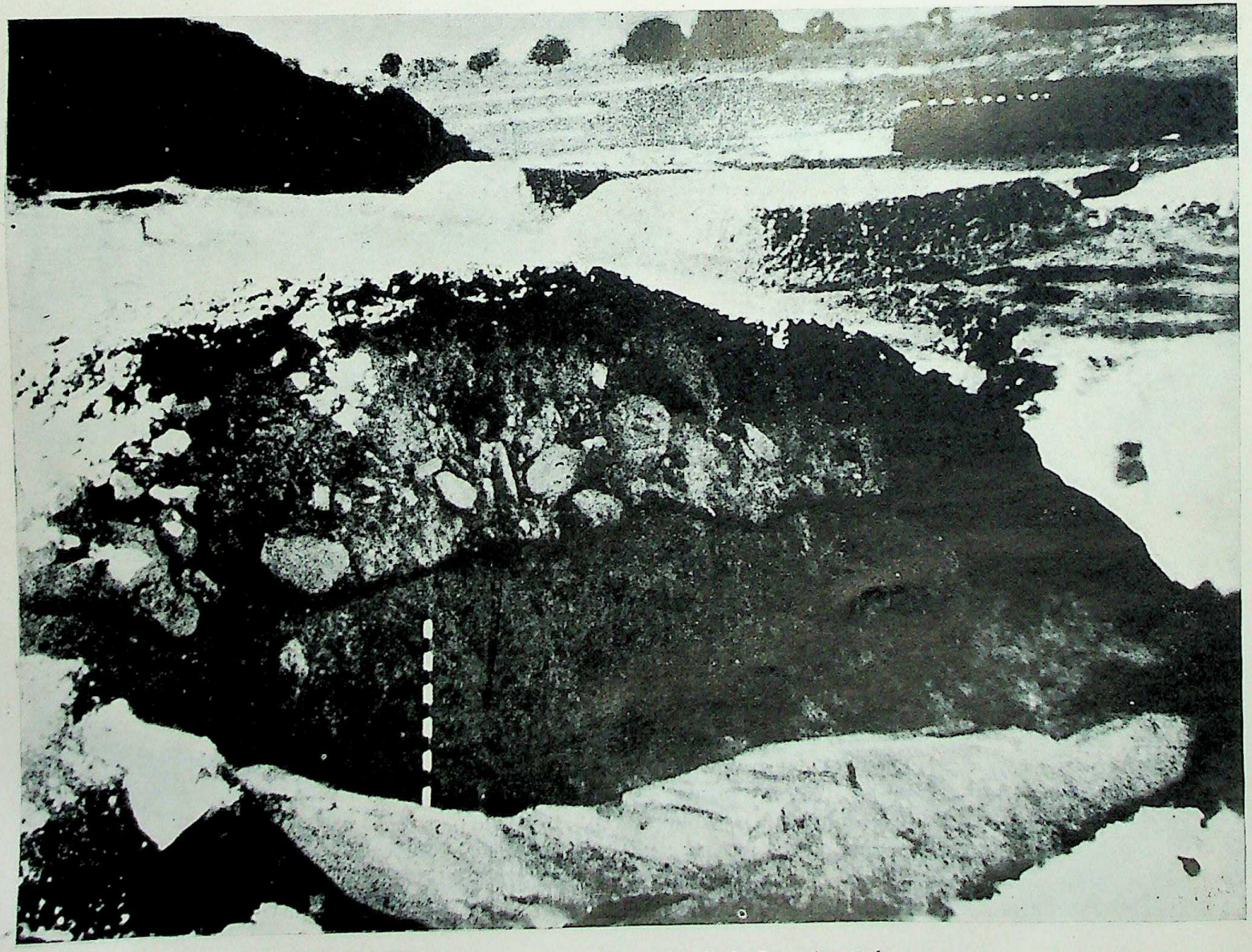

Plate 3. Section of debris containing Early Stone Age tools

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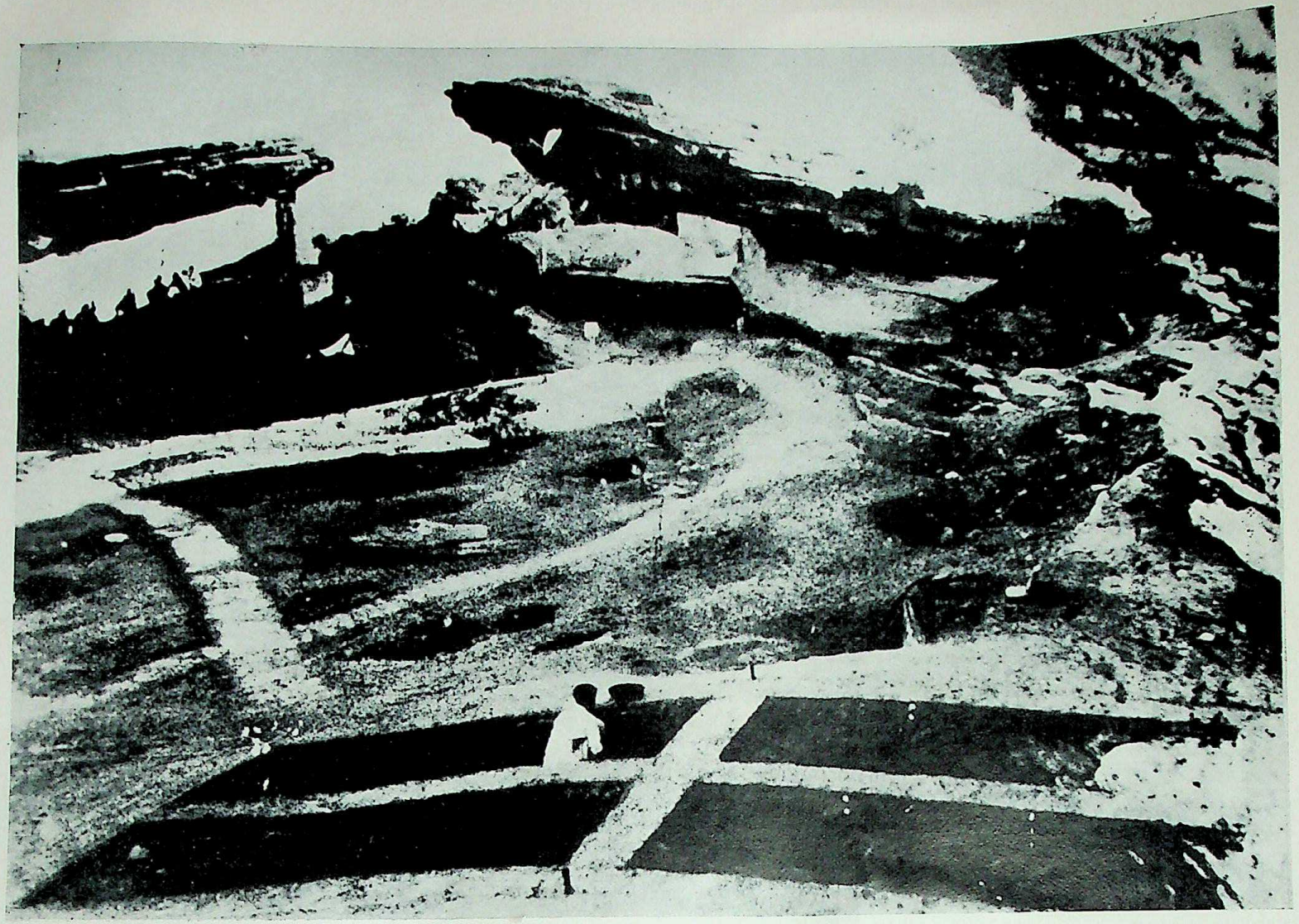

Plate 4. Adamgarh : Excavation in progress

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In general, it may be said that the triangular area lying within ADG-1, 6 and 7 provided all the important stratigraphical and cultural data on this hill. A naturally exposed section on the northern slope of the hill showed the various stages of the formation of laterite on the local sandstone, and its derivatives of gravely sand and clay, and finally the debris layers.

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# 2. EARLY AND MIDDLE STONE AGE

## (i) STRATIGRAPHY

Before dealing with the detailed stratigraphy obtained in each of the excavated trenches referred to above, it would perhaps be convenient to summarise the data collected from all of them, as well as from the exposed sections on the cliff and the slopes of the hill (Fig. 6 and pls. 3 and 4).

The hill is composed of bedded sandstones and quartzites of the Vindhyan system with significant partings of shale. The rocks have a westerly or north-westerly dip of 10° – 20°. The eastern or south-eastern face of the hill is an escarpment. On this side the cliff rises steeply by nearly 25 m from the ground level upto a more or less level surface on the top of the hill. A subsidiary scarp of about 8 to 10 m containing several of the rock shelters of this locality lies above this level surface.

The rocks exposed along the scarp show differential weathering, and the sandstones and shales have been most affected giving rise to pillar-like forms, honey-comb structures, and small erosional arches etc., characteristic of differential erosion. The quartzites, however, have resisted erosion, and these beds are often left as projections when the underlying weaker sandstone and shale beds have been denuded. The characteristic spheroidal weathering or exfoliation of the rocks due to thermal and chemical weathering can be vividly seen in several exposures. The bouldery forms displayed by the broken blocks on this hill and those found in the excavations are due to this kind of exfoliation and are not the product or river action. The sub-rounded rock fragments occurring in the debris are likewise affected by the erosion.

On the northern slope of the hill the rocks are covered by a ferruginous laterite crust. In some places where the rock is well-jointed this material has penetrated through the fractures. At one site huge boulders of the local rocks are found engulfed by the laterite, which has further initiated the lateritization of the boulders, and outer crust is now completely weathered and has assumed the honey-comb structure characteristic of true laterite. At the base of the escarpment a similar lateritization can be noticed in the naturally exposed rocks and this is also confirmed by evidence in the trenches ADG-3 and 4.

On the high ground the laterite was noticed in trenches ADG-6, ADG-5 and ADG-8. It was also struck in the trenches taken in the open rock-shelters as at ADG-7 and in the cave-like shelter at ADG-2. At all these places the laterite material rests on, or is partly enclosed in, the blocks of rocks broken off from the scarp face. The freshly exposed laterite had the appearance of typical laterite. It was red speckled with white having a honey-comb structure and was sticky when wet.

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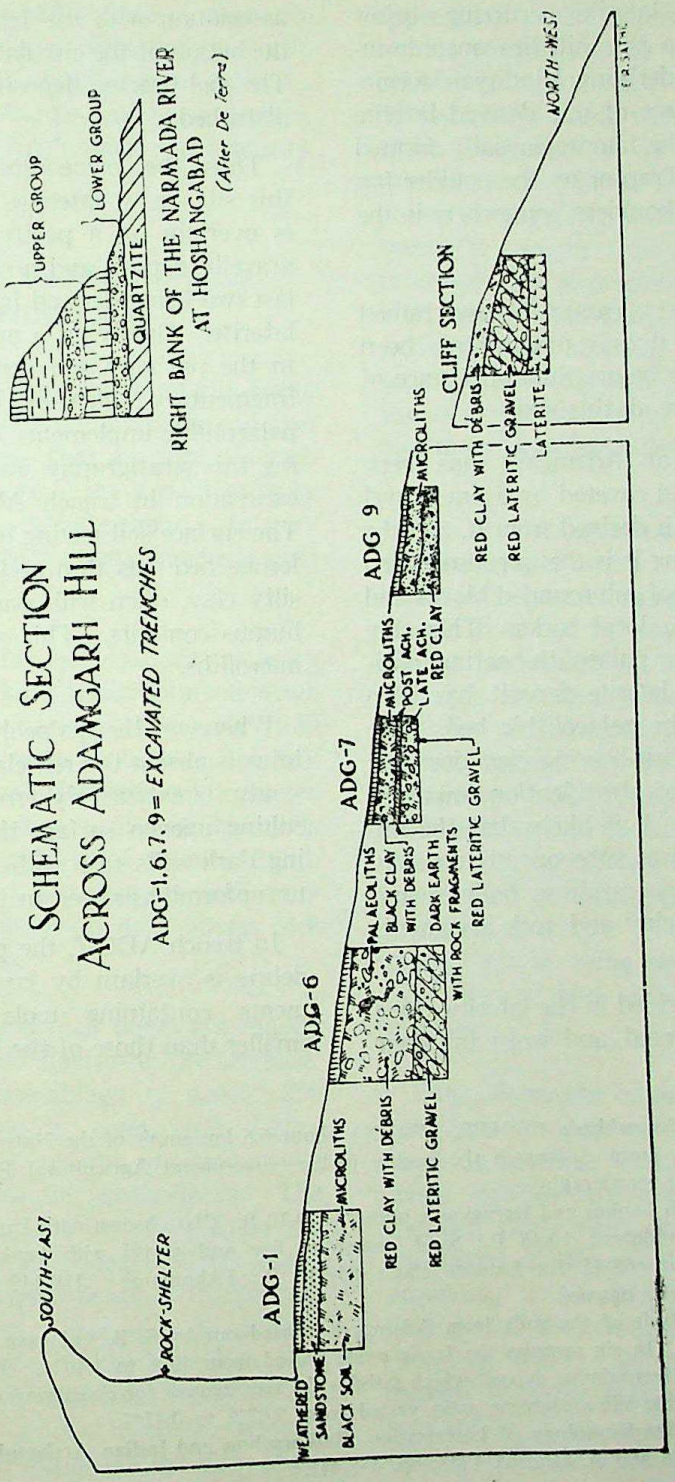


Fig. 6

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The detrital laterite occurring below the black soil on this hill lies unconformably on the underlying Vindhyan formations. The source of this derived laterite must be from the laterite initially formed on the Deccan Trap or on the boulder fan containing trap boulders, somewhere in the river basin.[7]

Its age, however, cannot be ascertained except to state that it might have been formed sometime before the appearance of Palaeolithic man at this site.

The laterite at Adamgarh has been partly eroded and covered by a fine gravel and red clay both derived from it. In the clay and overlying it is the unconsolidated debris composed of sub-rounded blocks and fragments of the local rocks. This clay and debris is the palaeolith-bearing horizon. No other laterite deposit has been noticed sealing the palaeolithic bed. The debris or the debris-bearing clay does not show any kind of stratification imparted by water action. It is likely that the underlying laterite was subsequently severely eroded and in the resulting hollows and depressions fine clay and rock fragments were deposited.

The tools embedded in the lateritic clays have been weathered and worn by their association with the ferruginous clay and the action of the circulating sub-soil water. The tool-bearing deposit thus appears undisturbed.

Thus the palaeolithic stratigraphy at this site has a lateritic substratum which is overlain by a partly hardened sandy-gravelly deposit and a sticky red clay, the last two being derived from the underlying laterite. Overlying it and partly enclosed in the red clay and sandy deposit is the fragmentary talus or debris containing palaeolithic implements. A section depicting this stratigraphy was observed in the excavation in trench ADG-6. (Fig. 7). The surface soil resting on the implementiferous bed was thin and composed of red silty clay, often with dark patches due to humus contents. This soil yielded a few microliths.

Wherever the palaeolithic tool-bearing talus is absent the red clay, which is often sandy, is extensively eroded. On the resulting uneven surface the microlith-bearing dark soils rest with a clear erosional unconformity as seen in trench ADG-8.

In trench ADG-7, the palaeolith-bearing debris is overlain by layers of rock fragments containing tools of dimensions smaller than those of the Early Stone Age.

---

7. Near the village Powarkheda (77°45′E, 22°43′N) about 6.6 km south of the Narmada and not far away from Adamgarh the boring in the Government Agricultural Farm gave the following stratigraphy :
Clay, blackish with kankar and ferruginous nodules : 0-10 ft.; Clay, brown with kankar and ferruginous nodules : 10-48 ft.; Sand, coarse to fine and gravel with kankar : 48-68 ft.; Laterite : 68-85 ft.; Laterite clay : 85-110 ft.; Lithomarge : 110-119 ft.; Basalt : 119-129 ft. onward.
The chemical analysis of the soils from Adamgarh carried out by S. B. Lal gave the following results : In six samples the ferric oxide varied from 40% to 1.40%. Thus here we have high ferruginous deposit which satisfies the requirement for classifying it as laterite. The soluble silica/alumina ratio varied from 2.02% to 0.47%.
See : S. B. Lal, Geochronology of Laterization, **Radiocarbon and Indian Archaeology** (Ed. D. E. Agarwal and A. Ghosh) 1973, pp. 435-445.

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The tools are generally made on quartzite and rarely on chert, chalcedony or vein quartz. It is an assemblage of scrapers, points, and flake-blades, and is comparable to other Indian Middle Stone Age artefacts.

### (ii) RAW MATERIAL AND TECHNIQUE

Nearly all the implements of the Early Stone Age are made on quartzites and fine-grained sandstones that are locally available in the outcrops of the Vindhyan rocks on the hill or as river pebbles. In very rare cases is chert or cherty quartzite used for this purpose.

A large number of tools are made on chunks and blocks of rocks obtained either from the talus or removed directly from the well-jointed rocks exposed on the hill. The system of multi-directional joints in the rocks has further facilitated quarrying of the rock fragments of tabular habit. Quite a few steep core-scrapers and choppers have been made on such tabular rock pieces themselves.

The pebbles and their flakes are equally freely used in manufacturing the artefacts. In the total assemblage of nearly 290 specimens including cores and flakes, about 35 per cent of the implements are made on pebbles or pebble-flakes. The geological formations on the hill do not contain conglomerate-beds which could have met the requirements of the pebbles for this purpose, nor could the pebbles have been deposited on the hill even under the conditions of excessive floods in the Narmada river and the adjoining stream. For, there is no evidence in the form of an appreciable pebble deposit or marks of extensive erosion due to flood action. No pebble-bed was struck even in trenches ADG-3 and 4 which were sunk at the foot of the escarpment on the east. The pebbly raw material utilized for these lithic industries, therefore, seems to have been specially brought from the neighbouring river-bed. An appreciable number of pebbles, found in the excavation in association with all types of lithic implements show signs of battering perhaps caused by their use as stone-hammers or fabricators in the tool manufacturing processes.

The pebbles have some advantage over the fragments from naturally exposed rocks. The former being readily available in the river-bed in any desired size and shape, the tool-maker has simply to select a proper specimen of this raw material to suit the requirements of the tool in his mind. Besides, the freshly exposed river pebbles are usually less weathered and are sufficiently tough to withstand drastic reduction in the thickness and breadth as required for producing the sharp edges and points of artefacts. On the other hand, cleaved blocks being weathered are generally weaker and less resistant for this purpose.

Over 50 percent of the choppers (choppers and chopper-chopping tools) are made on pebbles. Commonly flattish discoidal pebbles are used for unifacially trimmed steep-edged scrapers (choppers) and ovoid or ellipsoidal pebble forms for producing a chopper edge by alternate flaking on the circumference (chopper-chopping tools). Of the excavated tools, discoids form the major group after choppers and as in the case of the latter, nearly half of them are worked on pebbles.

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Handaxes and cleavers are rarely made on pebbles. These as well as other tool types are generally worked on flakes.

The flake scars on the tools are mostly shallow and small sized indicating controlled flaking. A large number of artefacts also show stepped scar-beds of careful secondary trimming. The primary flakes invariably have a plain striking platform and wide flaking angle. Flakes with faceted platforms are rare or absent.

The cross-sections of the finished tools are more or less sub-triangular or bi-convex and the implements have symmetrical forms.

All these features as well as the tool types are characteristic of the typical Acheulian assemblage. Technologically no distinction can be made between the tools on pebbles and those dressed on other raw material. Likewise, stratigraphically as well, no such differentiation can be made.

Most of the implements were weathered and some appeared dull and worn due to their burial in the lateritic material. The tools made on sandstones or coarse-grained quartzites were deeply weathered and some had acquired a whitish patina on surface. Typologically comparable artefacts on fine-grained, compact quartzite recovered from the same level were, however, remarkably fresh and unworn.

### (iii) EARLY STONE AGE INDUSTRIES

It is evident from the occurrence of a large number of unfinished tools that this was a palaeolithic factory site. Of the handaxes, which constitute about 16.40 per cent of the total collection, only 3.65 per cent are finished specimens. 5 or 6 cleavers from a total of 18 cleavers are simple forms. Among the choppers and discoids also there is an appreciable number of unfinished tools. The flakes which amount to approximately 17.55 per cent are mostly unretouched and unused and seem to be waste products.

Out of 292 tools from this site, about 25 were collected from the surface and the rest recovered from the excavation. For the sake of convenience the tools obtained from the surface near sites ADG-6 and 7 have also been included in the total collections. The collection comprises handaxes, cleavers, points, scrapers, flakes, choppers, cores and debitage. The proportion of each of these types in the total collection made at Adamgarh and also that obtained in the excavated trenches is given in Table 1. Trenches ADG-2, 6 and 7 yielded the majority of the tools, while in the other trenches only stray specimens were found scattered in all the levels. For the sake of brevity, therefore, the collections from ADG-2, and 7 are listed individually while in the column 'other trenches' the tools recovered from the remaining trenches are grouped together.

As shown in Table-1 the trench ADG-6 yielded nearly one-third of the Early Stone Age artefacts and it was the best locality for stratigraphical studies. The next important trench for these industries is ADG-7 which, in addition, yielded a fine collection of Middle Stone Age tools in sizeable number and stratigraphically overlying earlier assemblages. The most salient features of these trenches are given below.

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**TABLE-1 : EARLY STONE AGE TOOL TYPES**

| Trench | Handaxes | Cleavers | Points | Scrapers | Flakes | Discoids | Cores | Choppers | Picks | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| ADG-2 | 8 | 3 | 1 | 4 | 6 | 5 | — | 12 | 1 | 40 |
| ADG—6 | 13 | 11 | 4 | 3 | 25 | 15 | 4 | 24 | — | 99 |
| ADG—7 | 6 | — | 3 | 3 | 8 | 10 | — | 12 | — | 42 |
| Other Trenches | 11 | 2 | 3 | 7 | 9 | 19 | 9 | 28 | — | 88 |
| Surface | 6 | 2 | 1 | 1 | 5 | 5 | 2 | 3 | — | 25 |
| Total | 44 | 18 | 12 | 18 | 53 | 54 | 15 | 79 | 1 | 294 |

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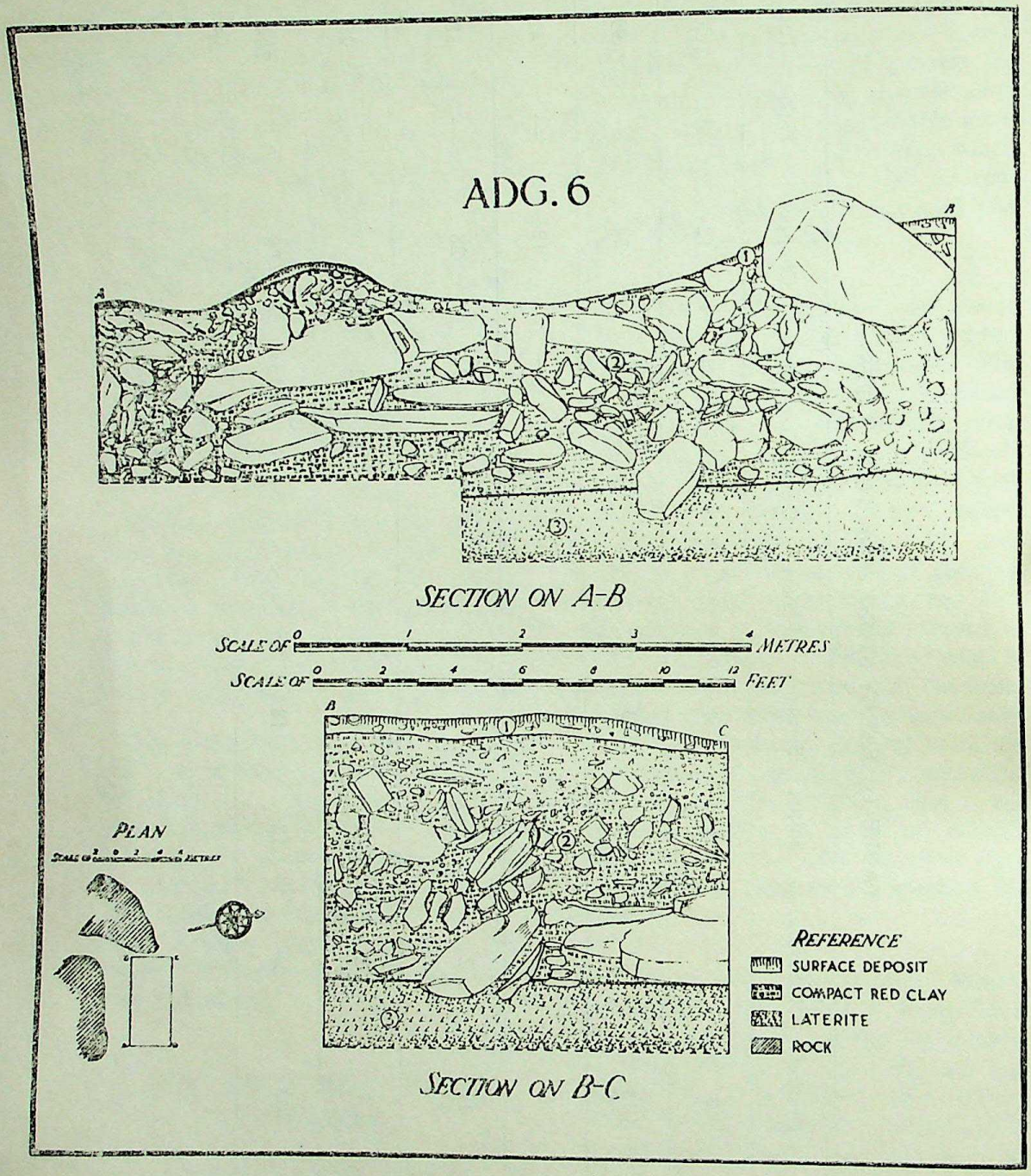


Fig. 7

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The tools found at a depth of 1.8 m in ADG-6, are two incomplete ovates — one on a flake, and another on a block — and four bifacial choppers. All these specimens are weathered and show early Acheulian forms. The richest tool-bearing horizon of 1.50 m contains most of the tool types in various proportions. These implements are generally less weathered. At this level the finely flaked fresh ovates of lenticular cross-section occur along with the thick and worn ovates of irregular cross-sections. The cleavers are few and do not show much variety. Choppers form the largest group of thirteen specimens. Of these four are unifacial, and all but one are worked on pebbles. The remaining nine choppers are bifacially trimmed — six on pebbles and three on blocks. As pointed out above (p. 13) the tool-makers seem to have always shown preference for pebbles whenever a chopper was desired. The other tool-types, viz. two points and eight flakes are not very characteristic, although the former appear for the first time at this trench in this level.

The succeeding level of 1.35 m shows a conspicuous increase in the cleavers of finer shapes and decrease in handaxes and choppers. No fresh handaxe or cleaver occurs above the level of 1.20 m and generally it marks the end of the Acheulian phase. The implements from the upper strata are small in size. The choppers from these levels have diminutive forms and from the point of view of their probable function they should rather be classified as core-scrapers.

In trench ADG-7 the handaxes occur around the level of 0.90 to 1.10 m while no cleaver was obtained from this trench. Of the four handaxes, two are chopper-like and one is an unfinished specimen. Only one is an ovate with lenticular cross-section. Excepting the ovate all are weathered and worn. The two handaxes found at 20 cm depth are unfinished core-handaxes in a weathered condition. Perhaps they are all stray specimens which got incorporated in the later deposit. The tools obtained in this trench are generally smaller in size, and types like points and scrapers are significantly present in all the levels. Except for their small size, the associated chopper group does not show any speciality. The implements are larger in size than those commonly met with in the Indian Middle Stone Age assemblages. Possibly this collection represents a late Acheulian facies.

A marked change in the tool composition occurs at the 80 cm level and above it. The implements of this horizon are small in size and represent an unspecialized industry comprising points and scrapers as the chief tool types representing the Middle Stone Age industries. (p. 34).

## (iv) TYPOLOGY AND DESCRIPTION OF ILLUSTRATED SPECIMENS

### A. HANDAXES

As many as 35 specimens, from a total of 45 handaxes, are incomplete forms. Most of them are unfinished ovoids, occassionally having a well-developed alternately flaked chopper-edge. However, these cannot be classified as choppers as the flaking is not restricted only to shaping the edge alone, but extends further over the body. The two pebble-handaxes have almond forms and their tongue-like working point is achieved by maximum flaking on either face. All the fully worked handaxes, ten in number, are made on flakes.

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Among them, ovates are the dominant type followed by the almond forms. The cross-sections of these implements are usually bi-convex. Technologically these handaxes belong to the Mid-Acheulian stage, and no types reminiscent of the Abbevillian or Early Acheulian are met with. Unless otherwise stated all the tools are made on quartzite and sandstone.

## I. HANDAXES ON CORES (Table 2)

(i) Handaxes on large to medium sized pebbles or blocks.

**No. 1.** A wedge-shaped flat pebble is taken and, with a minimum trimming from both the sides, a thin tongue-like projecting point is obtained at one end while the thicker end of the pebble is left unworked to provide a suitable hand-rest. An oval-shaped unfinished handaxe or point. Almost fresh and unrolled. ADG-10, 65-70 cm. (pl. 5).

**No. 2.** A sub-triangular, semi-rolled discoidal pebble is trimmed along half the circumference alternately from both sides producing a broad and mildly sinuous working edge. The implement is retouched by step-technique near the projecting point. The remaining unworked portion of the pebble forms a convenient pebble-butt. Slightly weathered. ADG-1, 46-50 cm. (pl. 5).

**No. 3.** An ovoid quartzite block is alternately worked along one side producing a mild sinuous edge while the opposite side, except for one or two stepped scar-beds is left practically unworked. The working end is a thin, tongue-like point produced by removing flat shallow flakes from the underside. Somewhat rolled and weathered. ADG-Sf (pl. 5).

(ii) Sub-triangular unfinished handaxes on small pebbles or blocks.

**No. 4.** A medium-sized tabular block is flaked alternately producing a sinuous edge and diagonally placed scar-beds. The resulting tool is an unfinished sub-triangular handaxe with a prominent medial ridge on the front, and a somewhat convex under-surface. Slightly weathered and worn. ADG-6 (pl. 5).

**No. 5.** Same as **No. 4**, but with secondary flaking on the butt. ADG-1, 1.40-1.85 m (pl. 5).

**No. 6.** Same as **No. 5**, but has a much weathered appearance due to its association with the red lateritic clay from which it was recovered. ADG-6, 1.45 m (pl. 6).

(iii) Ovoid unfinished handaxes on cores.

This group includes three specimens which are discoidal cores alternately worked along the periphery forming ovoid-type rough handaxes.

**No. 7** ADG–8, 1.08 – 1.48 m (pl. 5)

**No. 8** ADG–6, Surface (pl. 5)

**No. 9** ADG–6, Surface (pl. 5)

## II HANDAXES ON FLAKES

(i) Handaxes on thick flakes with well-developed chopping edge.

The following four tools which are partially bifacially trimmed may also be classed as choppers on account of their

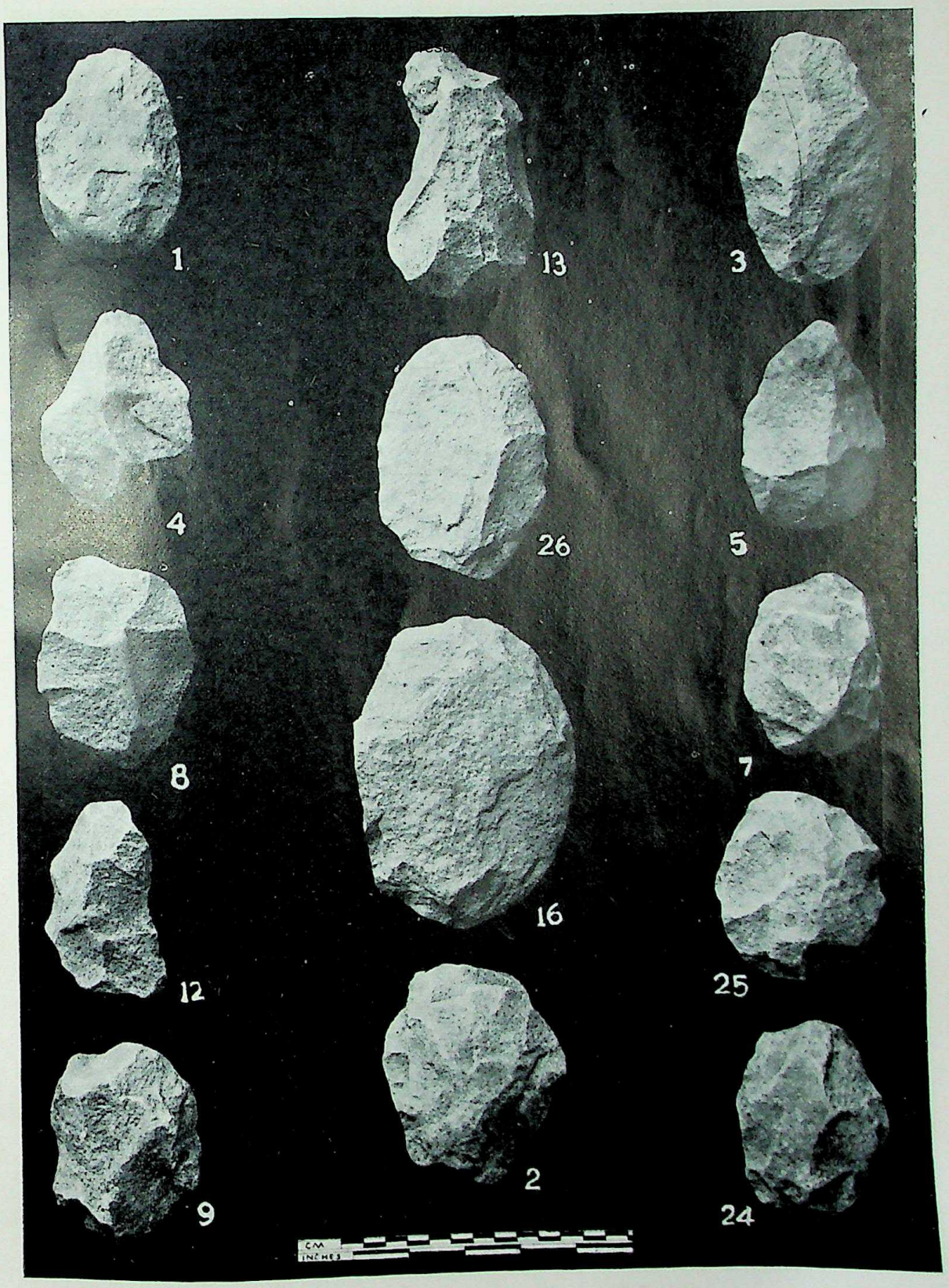


Plate 5. Early Stone Age tools : Handaxes

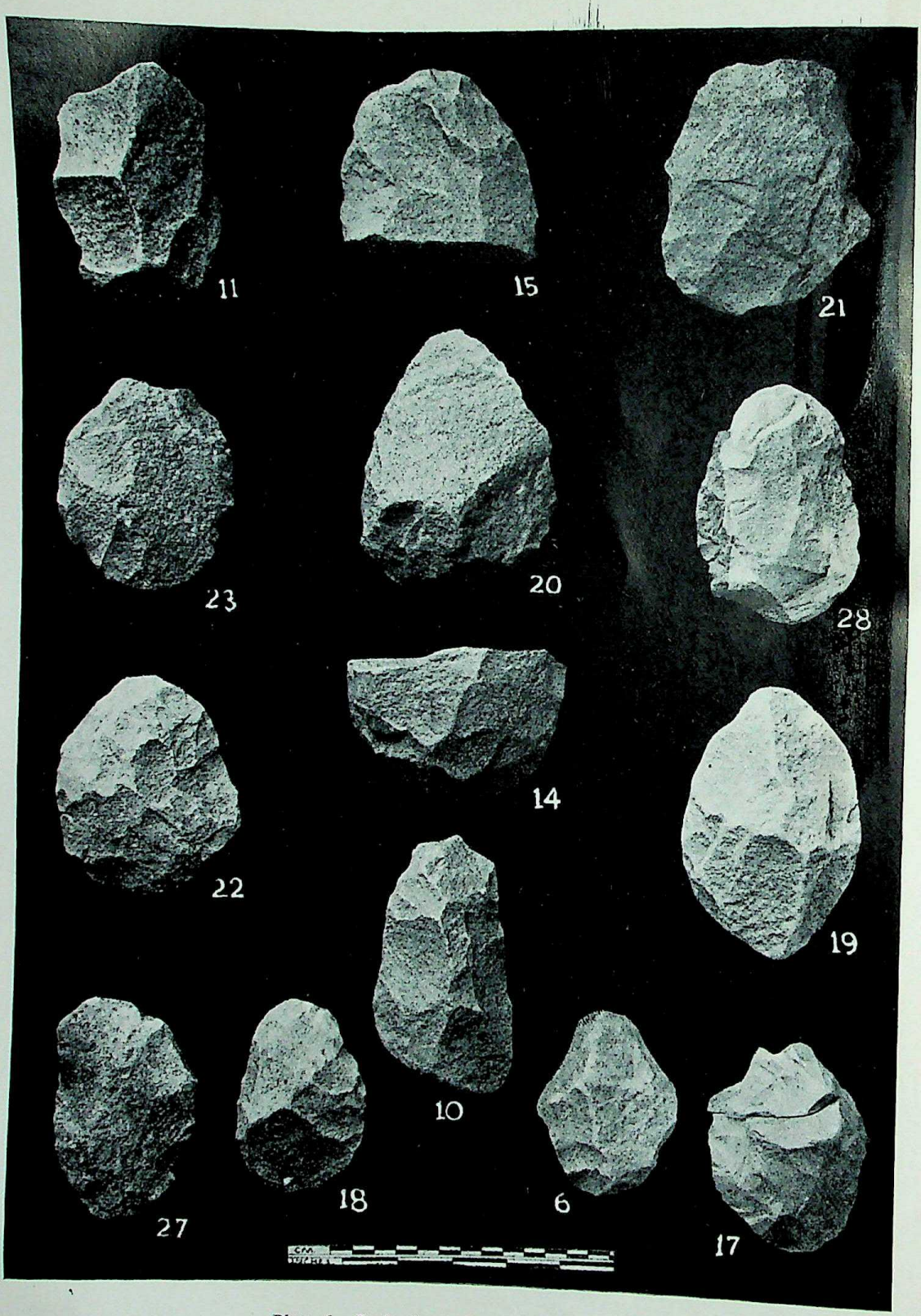


Plate 6. Early Stone Age tools : Handaxes

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## TABLE–2 HANDAXES AND CLEAVERS

| TRENCH | HANDAXES | | | | | | | | | | CLEAVERS | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | I (on cores) | | | II (on flakes) | | | | | | | | | | | | |
| | Type(i) | (ii) | (iii) | (i) | (ii) | (iii) | (iv) | (v) | (vi) | Total | I | II | III | IV | V | Total |
| ADG–2 | — | — | — | — | 2 | 1 | 3 | — | 2 | 8 | 1 | 1 | 1 | — | — | 3 |
| ADG-6 | — | 1 | 4 | 2 | — | 3 | — | 3 | — | 13 | 3 | 2 | 3 | 1 | 2 | 11 |
| ADG-7 | — | 1 | 1 | 3 | — | — | — | 1 | — | 6 | — | — | — | — | — | — |
| Other trenches | 3 | 1 | 3 | 2 | — | 1 | — | 1 | — | 11 | 2 | — | — | — | — | 2 |
| Surface | 1 | 2 | — | — | 1 | — | 1 | — | 1 | 6 | — | — | — | 2 | — | 2 |
| Total | 4 | 5 | 8 | 7 | 3 | 5 | 4 | 5 | 3 | 44 | 6 | 3 | 4 | 3 | 2 | 18 |

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bilaterally well-prepared wavy chopping edges. But, because the flaking is further extended on the other side in one or both directions and in places also along the entire margin they have been grouped with the handaxes. Excepting **No. 11**, the other tools, however, have not assumed the form of handaxes and as such they have been grouped here as unfinished handaxes on thick flakes.

**No. 10.** A pear-shaped end-flake trimmed on the upper surface along both the margins resulting in a prominent longitudinal keel in the centre. On the underside the flaking is carried out only on one side and the rest of the primary flake surface is left unworked. The scar-beds are shallow. This tool could also have served as a side-chopper. Fresh. ADG-1, 75-90 cm (pl. 6).

**No. 11.** A thick oval flake from a quartzite block is boldly flaked on both the sides in two directions producing a wavy but sharp edge on one side. The flake-scars on both the surfaces meet in a keel on each surface. ADG-7, 75-90 cm (pl. 6).

**No. 12.** An ovoid flake from a block is flaked in the same fashion as in **No. 10** above. This specimen is, however, smaller in size and heavily stained and weathered due to being buried in the lateritic material (pl. 5).

**No. 13.** Finely flaked alternately along three-fourths of the margin resulting in a wavy chopper or scraper edge on the right side. The left unworked side is suitable for a hand rest. Slightly weathered. ADG-7, 75-90 cm (pl. 5).

(ii) Large thick ovates on end-flakes.

**No. 14.** A large thick ovate on flake trimmed all round. By secondary retouch, the edge is made even along the entire periphery. Symmetrical body and bi-convex cross-section. The tool is broken in the middle, perhaps due to thermal action. Slightly worn and weathered. ADG-Sf. (pl. 6).

**No. 15.** Made on an end-flake, fully trimmed on the front by the cylinder-hammer technique. The undersurface is a primary flake surface and on this side the tool is worked along one margin only. The edge around is thin and even. Like **No. 14** this tool is also broken in the middle. Little worn. ADG-2, 2.50-2.60 m (pl. 6).

**No. 16.** A large ovate on an end-flake. It is worked along the periphery by the step-technique. Slightly weathered and worn. ADG-2, 1.20 m (pl. 5).

(iii) Medium-size thick ovates on end- or side-flakes.

**No. 17.** Made on a side-flake from a grey cherty-quartzite block. The left side is thicker on account of the bulbar area. The tool is well trimmed on both the surfaces and further retouched along the entire periphery. This specimen may have also served as a convex side-scraper. Fresh and unrolled. ADG-2, 0.65-1.12 m (pl. 6).

**No. 18.** An end-flake is worked in two directions by removing shallow blade-like flakes. The tool is flaked alternately and retouched all along the margin to produce a thin working edge. Slightly weathered due to lateritic clay action. ADG-6, 7.42 cm (pl. 6).

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**No. 19.** Same as **No. 18** but larger in size and showing crude workmanship. It is weathered and worn due to its association with the red clay. ADG-5, 12 cm (pl. 6).

(iv) Almond-shaped handaxes on flakes.

**No. 20.** Fully worked on the front of an end-flake. A large number of scars show step-flaking. On the underside it is trimmed along the butt and slightly along the two edges. The butt is broad and thick due to the bulbar area. Almost fresh and unrolled. ADG-2, 80 cm (pl. 6).

**No. 21.** Same as above, but broader at the point. Heavily stained by the yellowish clay from which it was recovered and also somewhat worn. ADG-2, 80-120 cm (pl. 6).

(v) Ovates on flakes with lenticular cross-section.

The following tools of this type are fully and finely flaked on both the surfaces, the resulting scars being small and shallow. The edge is thin all round the periphery.

**No. 22.** ADG-6, 1.50 m (pl. 6).

**No. 23.** ADG-6,Surface (pl. 6).

**No. 24.** ADG-9, 34-86 m. (pl. 5).

**No. 25.** ADG-7, 77-90 cm (pl. 5).

(vi) Oblong ovates on end-flakes, fully flaked.

**No. 26.** The tool is made on an end-flake from a quartzite block. Very finely worked on the front. The butt carries a rhomb-shaped plain striking platform. The undersurface is trimmed along the right margin by step-flaking leaving the rest of the primary flake surface unworked. Finely retouched on the upper surface all along the margin producing a thin edge. Fresh and unrolled. ADG-2, 2.28-2.48 m (pl. 5).

**No. 27.** Same as **No. 26** but the striking platform is completely flaked off, and since the tool is made out of a spotted cherty-quartzite, the scar-beds are more sharp. Slightly retouched marginally. ADG-6, 0.50 m (pl. 6).

**No. 28.** This specimen is made on a banded quartzite and is heavily weathered. ADG-2, 2.90 m (pl. 6).

## B. CLEAVERS. (Table 2)

Only 18 cleavers were obtained in the excavation. Of them, 3 are primitive forms made on tabular quartzite pieces and do not possess the conventional transverse scar on the front of the implement. This scar generally forms the cleaver edge by intersecting with the plain primary flake surface on the underside. The edge in these specimens is obtained by taking advantage of the inclined cleavage plain of the natural rock.

All the cleavers are made on flakes. A little variation is noticed in the form of their butts which are either angular, straight, or convex. In the majority of tools the cutting edge is oblique, and convex, and straight cutting edges are rare. In most of the specimens the cross-sections in the middle of the tool are bi-convex, while those in the case of simple cleavers worked on tabular rocks are trapezoidal.

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I. Angular butt, parallel sides and oblique cutting edge.

**No. 29.** Made on an end-flake from a pebble leaving a cortex patch on the butt. The underside is a plain primary flake surface. The sides are flaked in one direction and only on the front. The broken cutting edge is slightly oblique or convex to the long axis. Slightly rolled and weathered. ADG-1, 45-78 cm (pl. 7).

**No. 30.** Same as above, but made on a flake. Boldly flaked on the front. The flake-scars on the cutting edge have produced notches. Fresh ADG-2, 1.2 m (pl. 7).

**No. 31.** Made on a large heavy end-flake. Boldly flaked on the front. The underside is unworked and uneven. Slightly rolled and weathered. ADG-6, Sf. (pl. 7).

II. Short straight butt, sides divergent towards the broad and oblique cutting edge.

**No. 32.** The butt is short and formed of a slightly concave and plain striking platform of an end-flake. The sides are somewhat convex and divergent towards the broad cutting edge. The underside is a plain primary flake surface. A little secondary retouch on the right side while the left side is uneven due to large scar-beds. Almost fresh. ADG-6, 1.50 m (pl. 7).

**No. 33.** Same as above but finely retouched on the short side on the front, and on the underside, it is flaked on one side by the step-technique. Fresh and unrolled. ADG-2, 1.20-1.70 m (pl. 7).

III. Convex or round flaked butt, straight or slightly convex sides, and the cutting edge either oblique or straight.

**No. 34.** Made on an end-flake the tool is flaked alternately all along the margin, except for the cutting edge, and secondarily retouched on the sides by step-flaking. The butt is thin and round and the cutting edge is straight and unabraded. Slightly weathered but unrolled. ADG-6, 0.30-1.22 m (pl. 7).

**No. 35.** Fully worked on either surface by controlled flaking producing a thin edge around. The butt is convex and the sides are flaring towards the broad and convex cutting edge. The tool is neat in outline and has a symmetrical body. ADG-6, Sf. (pl. 7).

**No. 36.** Same as above but of a smaller size. ADG-6, 50 cm (pl. 7).

**No. 37.** Fully and alternately flaked on the butt and the shorter side, while on the longer side, the tool is worked only from the underside. Also finely retouched along the longer side. The cutting edge is sharp and oblique. Slightly weathered and unrolled. ADG-2, 1.90-2.60 m (pl. 7).

IV. U-shaped cleavers with large bodies.

**No. 38.** Made on a thick end flake, the tool has a U-shaped body and broad convex butt. The left side is thick towards the butt-end and shows fine alternate flaking. This side is further retouched by step-flaking. The opposite side is thin and finely flaked. The cutting edge is straight and broken. Almost fresh and unrolled. ADG-6, Sf. (pl. 7).

**No. 39.** Fully and finely trimmed thick and large body. Rounded flaked butt and

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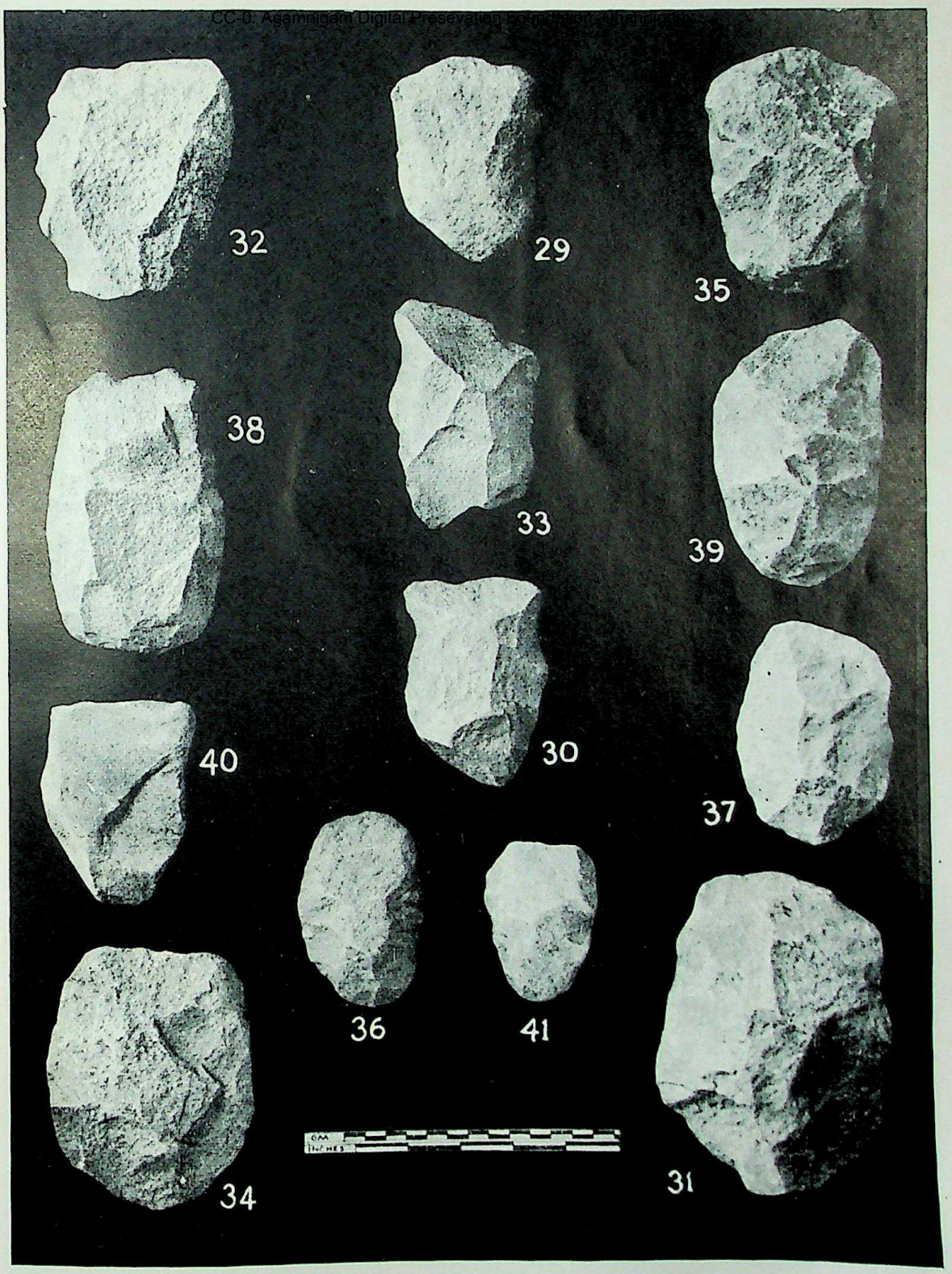


Plate 7. Early Stone Age tools : Cleavers

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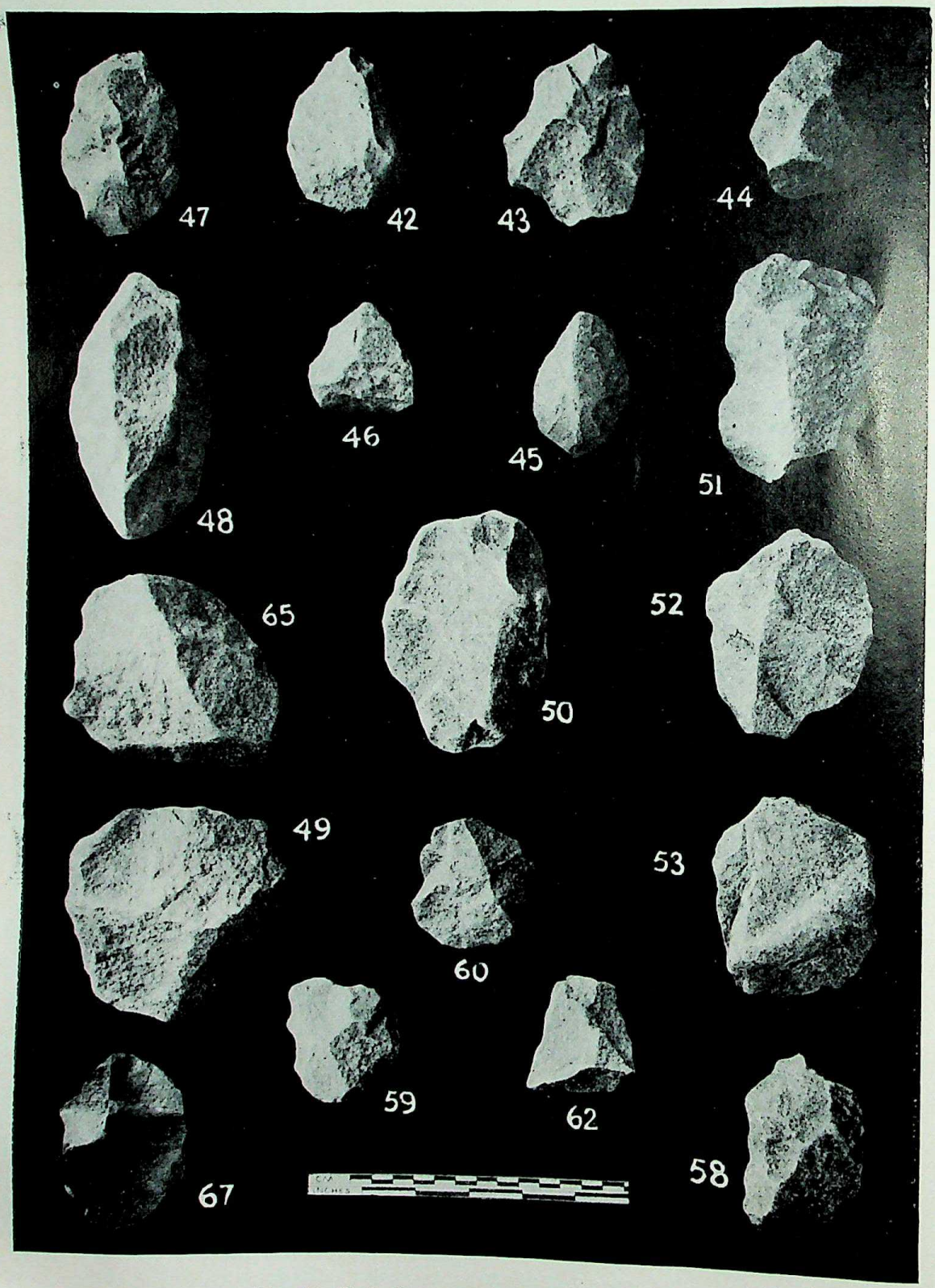


Plate 8. Early Stone Age tools : Points, flakes, etc.

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slightly flaring sides. The cutting edge is oblique and broken. The undersurface is flat. Slightly weathered. ADG-6, Sf. (pl. 7).

V. Simple cleaver forms.

This group includes three specimens of very simple cleaver-like tools showing very little workmanship. These tools were obtained from the top horizon of the laterite clay underlying the debris.

**No. 40.** Made on a flake from a quartzite pebble which is worn and stained due to its association with the lateritic clay. The front, on 'the right margin, is worked by removing two or three small flakes by step-flaking. The underside is a plain primary flake surface having a thick positive bulb of percussion at the base. The butt is angular and covered by pebble cortex. The right side is longer than the left side and the cutting edge is straight. Slightly weathered. ADG-6, 1.35 m (pl. 7).

**No. 41.** A small heavily weathered tool with a short convex butt and straight abraded cutting edge. This specimen might have been used as a small chisel or a wedge. ADG-6, 1.45 m (pl. 7).

## C. POINTS (Table 3)

The following points were found in association with the handaxes and cleavers. Some of them may also be classified as cordiform handaxes.

(i) Unifacial points made on flakes from tabular rock fragments.

**No. 42.** An almond-shaped tabular flake is somewhat steeply flaked on the front on the right margin, and only near the tip-end on the left margin. The undersurface is flat and unworked. Weathered and slightly worn. ADG-7, 0.90-1.02 m (pl. 8).

(ii) Unifacial single-shouldered point on flake.

**No. 43.** An end-flake from a tabular rock is trimmed on the front producing more or less converging scar-beds, some of which are stepped ones. The edge is secondarily retouched at the base on the left margin. The butt carries a lense-shaped plain striking platform. A deep scar at the base has produced a conspicuous shoulder and the tool might have been hafted. Weathered and worn. ADG-10, 1.55 m (pl. 8).

(iii) Bifacially worked points on small thick flakes.

**No. 44.** A cordiform-type point made on a thick flake from a tabular quartzite block. Fully trimmed all around mostly by the step-technique. The front shows a band of cortex in the centre. Slightly weathered. ADG-1, 45-50 cm (pl. 8).

(iv) Miscellaneous points.

**No. 45.** A small sub-oval flake is very finely trimmed on the front by taking small flat flakes along the entire margin. On the underside the tool is worked only along one edge, while the rest of the primary flake surface is left unworked. Much weathered and worn. ADG-6, 1.50 m (pl. 8).

**No. 46.** A sub-triangular flake has been trimmed on the front producing two triangular transverse scar-beds. The sides are further retouched steeply. The underside is plain. Slightly weathered. ADG-7, 0.95-1.02 m (pl. 8).

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**TABLE–3 EARLY STONE AGE: POINTS AND SCRAPERS**

| Trench/Type | POINTS | | | | TOTAL | SCRAPERS | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| | (i) | (ii) | (iii) | (iv) | | (i) | (ii) | (iii) | |
| ADG–2 | — | — | — | 1 | 1 | 1 | — | 3 | 4 |
| ADG–6 | 1 | 1 | — | 2 | 4 | 1 | — | 2 | 3 |
| ADG–7 | 1 | — | 1 | 1 | 3 | 2 | 1 | — | 3 |
| Other trenches | — | 1 | 1 | 1 | 3 | 3 | 4 | — | 7 |
| Surface | — | — | 1 | — | 1 | — | 1 | — | 1 |
| Total | 2 | 2 | 3 | 5 | 12 | 7 | 6 | 5 | 18 |

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**No. 47.** An ovoid flake is partially worked on both the sides. The edge is uneven. Almost fresh. ADG-1, 50-60 cm (pl. 8).

### D. PICKS.

**No. 48.** A medium-sized quartzite block is taken and a flat surface is produced by bold flaking. The natural shape of the block forms a humped-back over this prepared flatish undersurface. The two tapering ends of the long axis of the implement are the working ends of the pick. ADG-2, 2.90 m (pl. 8).

### E. FLAKES (Table 4)

Although this is a factory site the proportion of flakes in the total excavated material is not large but only about 20% of the entire collection. It should be mentioned here that in this category are counted only those rock flakes which possess a distinct bulb of percussion, and the rest of the fragmentary material has not been considered. All the flakes have unfaceted striking platforms forming an obtuse angle with the plain primary flake surface. None of them shows the Levalloisian type of prepared platform. Some flakes showing converging sub-triangular flake scars on the front suggest that some kind of core preparation seems to have been used prior to their detachment from the cores. The flakes described hereunder could have been utilized in the manufacture of flake-tools described elsewhere.

(i) Large end-flakes from blocks of quartzite.

**No. 49.** Sub-triangular end-flake with a rhomb-shaped plain striking platform. The front carries three or four large but shallow sub-rectangular scar-beds. Heavily weathered and worn due to burial in lateritic clay. ADG-6, 1.35 m (pl. 8).

**No. 50.** An oval end-flake from a quartzite block with a small rectangular, dished and plain platform making an angle of 110° with the plain primary flake surface. Flaked on the margin on the dorsal side. A faint keel running along the length of the flake is seen near the right side on the front. Much weathered and worn. ADG-6, Sf. (pl. 8).

**No. 51.** A sub-rectangular long flake with a crescentric, unfaceted platform and wide angle of percussion. On the upper surface there is a distinct keel running the length of the tool and little step-flaking near the bulbar end. Slightly worn. ADG-6, 1.70 m (pl. 8).

(ii) Medium-sized end-flakes.

**No. 52.** A squarish flake from a block with two or three large but flatish scars on the front. Slightly retouched on the right side. Weathered and worn. ADG-6, 1.50 m (pl. 8)..

**No. 53.** Same as **No. 52.** In this specimen the intersection of two longitudinal scars has produced a mild medial ridge. Slightly weathered. ADG-6, 1.05 m (pl. 8).

**No. 54.** Similar to **No. 53.** ADG-6, 1.45 m (pl. 9).

**No. 55.** A sub-round flake showing on the front considerable flaking prior to its detachment from the core. Some of the scars are reminiscent of step-flaking. The underside is worked slightly along the margin. Slightly weathered. ADG-6, 1.05 m (pl. 9).

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TABLE–4 EARLY STONE AGE : FLAKES, DISCOIDS AND CORES

| Trench/Types | FLAKES | | | | | | | | DISCOIDS | | | | | COERS | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii) | Total | (i) | (ii) | (iii) | (iv) | Total | | |
| ADG–2 | — | 1 | 1 | — | 2 | — | 2 | 6 | 2 | 2 | — | 1 | 5 | — | — |
| ADG–6 | 6 | 6 | 5 | 4 | 1 | 2 | 1 | 25 | 1 | 10 | 2 | 2 | 15 | 4 | 4 |
| ADG–7 | 1 | — | 2 | 1 | 2 | 2 | — | 8 | 2 | 5 | 1 | 2 | 10 | — | — |
| Other Trenches | — | — | — | 4 | — | 2 | 3 | 9 | 1 | 11 | 3 | 4 | 19 | 9 | 9 |
| Surface | 3 | — | — | 2 | — | — | — | 5 | — | 2 | 1 | 2 | 5 | 2 | 2 |
| Total | 10 | 7 | 8 | 11 | 5 | 6 | 6 | 53 | 6 | 30 | 7 | 11 | 54 | 15 | 15 |

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**No. 56.** Similar to **No. 55** but having no working on the underside. ADG-6, 1.05 m (pl. 9).

(iii) Medium-sized end-flakes with leaf-like forms.

**No. 57.** A long leaf-like flake or flake-blade with a tiny unfaceted striking platform inclined at an angle of 120° to the primary flake surface. Finely flaked on the dorsal side and slightly retouched along the margin. The right side is convex, while the left side is straight and notched. Slightly weathered ADG-6, Sf. (pl. 9).

**No. 58.** Same as **No. 57** but with limited primary flaking restricted to the left margin on the front. The front carries a large cortex patch on the right half of the tool. Much weathered. ADG-6, 1.10 m (pl. 8).

(iv) Small round or sub-triangular flakes with convergent primary flaking on the front.

**No. 59.** A small sub-triangular flake with a plain, unfaceted, rhomb-shaped striking platform, making an angle of 129° with the primary flake surface. Slightly retouched at the base. Slightly weathered. ADG-6, 1.50 m (pl. 8).

**No. 60.** A rhomboidal flake with tiny unprepared platform inclined at 115° angle. Flaked on the front. On the primary flake surface only the bulb is erased. Slightly weathered. ADG-7, 60-70 cm (pl. 8).

(v) Thin, small flakes or flake-blades of various shapes.

**No. 61.** A typical blade-like flake from a pebble with more or less parallel sides, and the front showing one longitudinal and one oblique scar. The left half of the front is the unworked pebble cortex. The plain striking platform makes an angle of 123° with the primary flake surface. The edges show use marks. Almost fresh. ADG-2, 1.58-1.83 m (pl. 9).

**No. 62.** A trapezoidal flake from a block with 125° flaking angle at the unfaceted striking platform. The upper surface carries two scar-beds. The appearance of this flake is like a tranchet. Slightly weathered. ADG-7, 70-90 cm (pl. 8).

**No. 63.** A sub-triangular flake with a flattish bulb of percussion. Limited flaking is seen on the front while the underside is completely unworked. Slightly weathered. ADG-7, 1.02-1.18 m (pl. 9).

**No. 64.** An oval flake having two dissimilar longitudinal scars on the upper surface intersecting to form a mild medial ridge. On the right is a patch of unworked pebble cortex. Stout (flaking angle 135°) positive bulb of percussion. Weathered. ADG-2, 1.80-2.95 m (pl. 9).

(vi) Side-flakes of medium size with unfaceted striking platform and wide flaking angle.

**No. 65.** A long cleaver-like flake with a little working on the upper surface. The undersurface is unworked. Possibly retouched on the thin edge at the base. The flake was recovered from the red clay. ADG-6, 1.50 m (pl. 8).

**No. 66.** Larger than **No. 65**, flaked on the front along the margin. The undersurface carries a defused bulb of percussion. ADG-6, 1.5 m (pl. 9).

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(vii) Non-descript or Miscellaneous flakes.

**No. 67.** An oval flake from the pebble. But for the two small stepped flake-scars the upper surface is completely covered by the pebble cortex. The underside shows marginal flaking by step-technique. The bulb and striking platform are erased. ADG-11, 1.10-1.30 m (pl. 8).

**No. 68.** A blade-like flake with one longitudinal scar on the front surface. The bulb is erased. Weathered and worn. ADG-10, 1.55 m (pl. 9).

### F. SCRAPERS (Table 3)

The collection consists of a large number of tools which may be classified as scrapers. Most of these are, however, core-scrapers and for the sake of convenience such specimens are grouped and described under core types. Below are described the flake-scrapers which constitute only a small fraction of the scraper-type implements.

(i) Scrapers on round pebble flakes.

**No. 69.** A thin round quartzite pebble flake is trimmed along the entire periphery to form a round scraper. The edge, which is generally even, is indented in places by larger strokes producing one or two points so that the tool can also be used as a borer. The front surface, except along the periphery, is completely covered by the pebble cortex. ADG-6, 50 cm (pl. 9).

**No. 70.** Same as **No. 69** having a conspicuous borer-like point. ADG-10, 1.55 m (pl. 9).

**No. 71.** Limited flaking on the upper surface leaving a pebble cortex in the centre. On the undersurface the removal of two flakes in opposite directions has produced deep scars, resulting a sort of hollow base. Retouched along nearly three-fourths of the circumference to form a scraper edge. ADG-7, 0.90-1.02 m (pl. 9).

(ii) Scrapers on sub-triangular or oval flakes from pebbles.

**No. 72.** A sub-triangular flake is trimmed in one direction all along the margin. Almost fresh. ADG-10, 15-20 cm (pl. 9).

**No. 73.** An oval pebble flake is finely worked resulting in a fan-shaped, oblique scraping edge. There is also a notch on the right side. While most of the upper surface is covered by pebble cortex, the underside carries a very deep scar giving the tool a sort of hollow base. Slightly weathered. ADG-1, 40-50 cm (pl. 9).

(iii) Scrapers on side-flakes.

**No. 74.** A thick, oval side-flake is trimmed on the front surface along one side to form a convex and mildly uneven scraper edge. This tool is covered by a yellow encrustation of ferruginous lateritic clay. A little worn. ADG-6, 50 cm (pl. 9).

**No. 75.** This specimen is more or less similar to **No. 74.** Steep flaking on the upper surface of this pebble flake has produced a low medial ridge and a point, and thus it could have served both as a scraper and a point. ADG-2, 30 cm (pl. 9).

### G. CHOPPERS AND CORE SCRAPERS (Table 5)

Of all the tools the choppers and steeply worked core scrapers constitute the largest group. For the sake of convenience both these types are treated under one category

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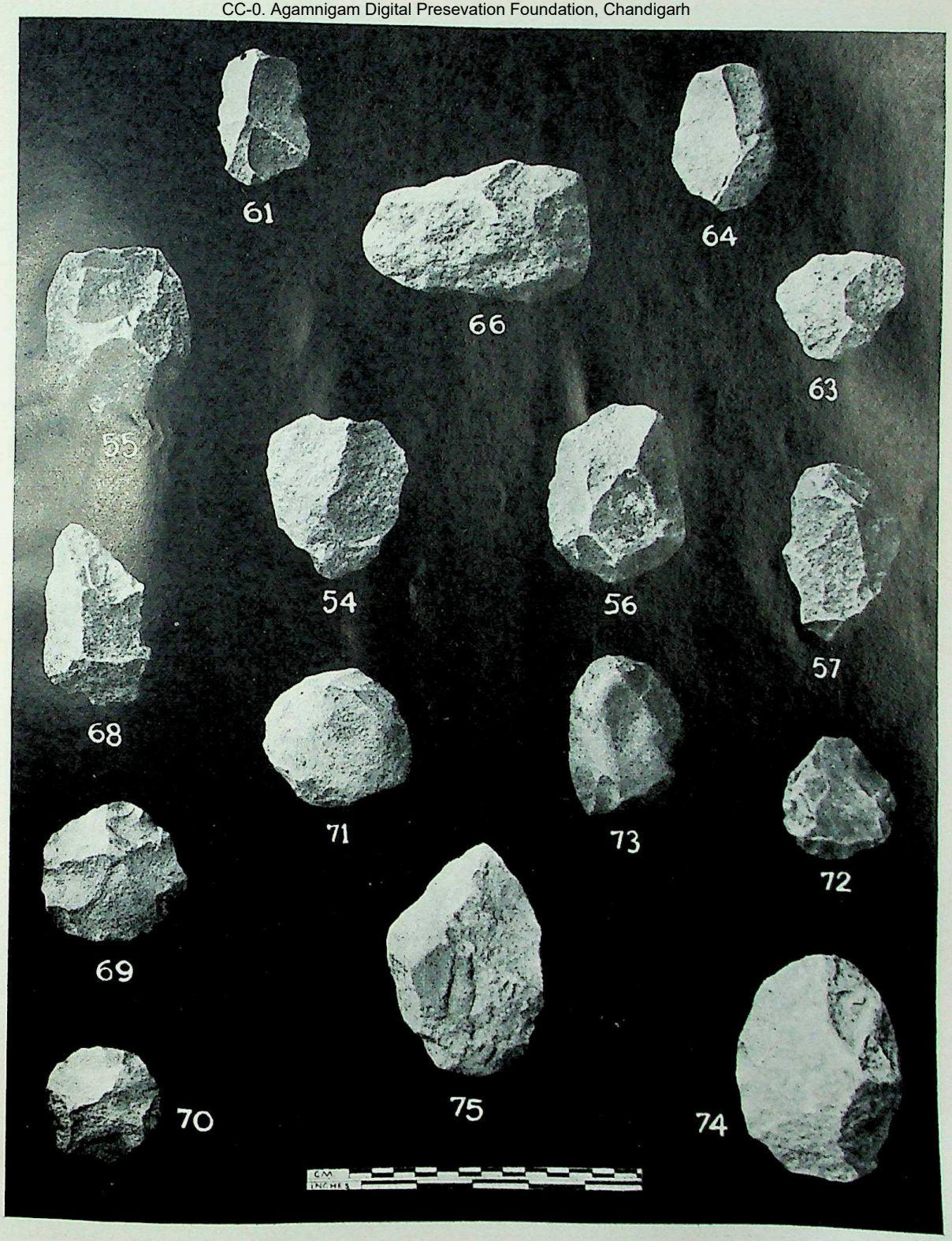


Plate 9. Early Stone Age tools : Flakes and scrapers

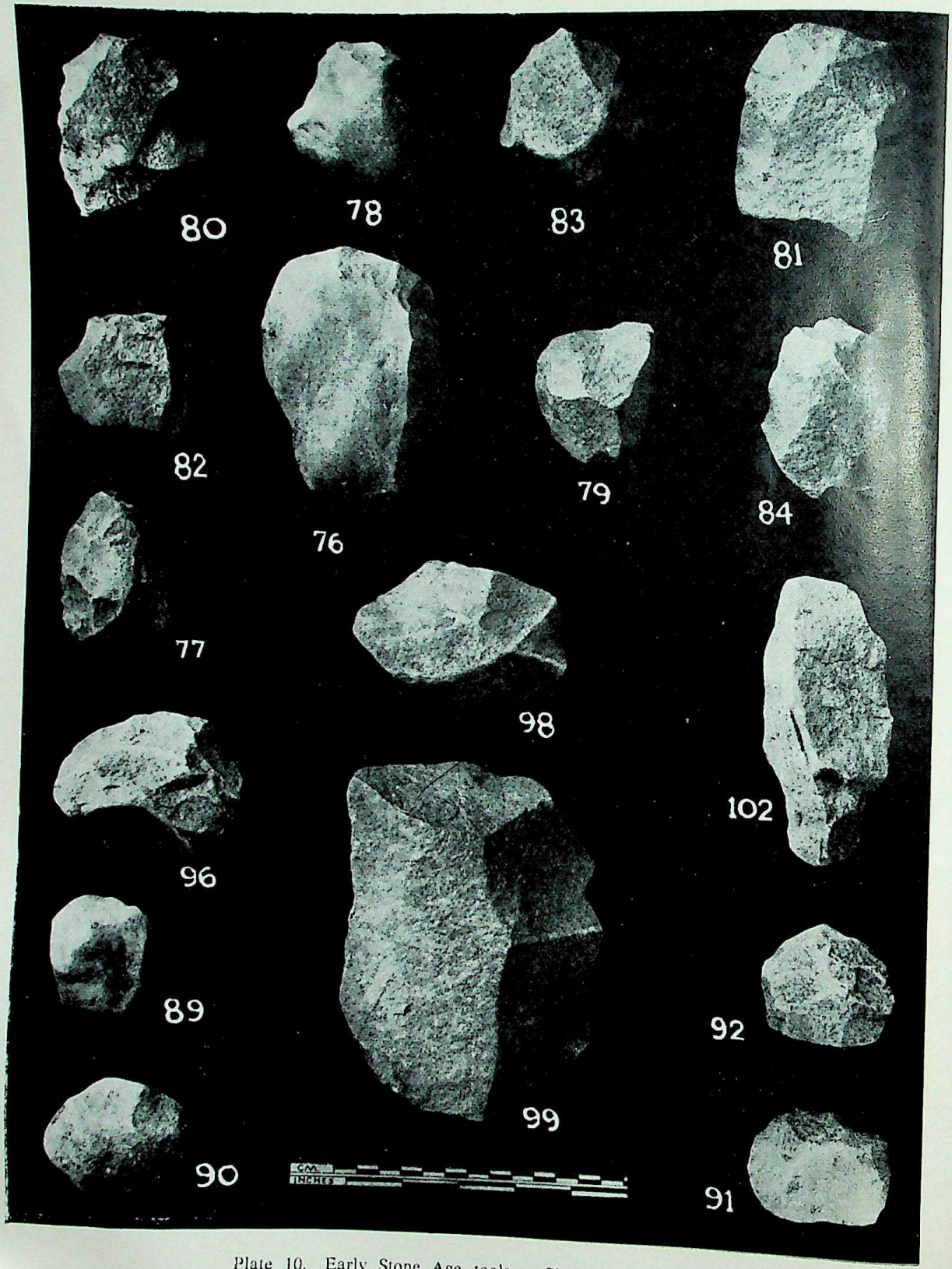


Plate 10. Early Stone Age tools : Choppers

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## TABLE–5 EARLY STONE AGE : CHOPPERS

| TRENCH | I ( Unifacial ) | | | | II ( Bifacial ) | | | | | III Miscellaneous | | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Type | ( i ) | ( ii ) | ( iii ) | (iv) | ( i ) | ( ii ) | (iii) | (iv) | ( v ) | (vi) | (vii) | (viii) | | |
| ADG—2 | 3 | 1 | — | — | 3 | 1 | — | 1 | 2 | — | — | — | 1 | 12 |
| ADG—6 | 2 | 2 | — | 1 | — | 1 | 1 | — | 5 | 3 | 3 | 1 | 5 | 24 |
| ADG—7 | 2 | 1 | 3 | — | — | — | 1 | 2 | — | 1 | 1 | — | 1 | 12 |
| Other Trenches | 1 | 9 | — | 1 | 2 | 1 | 1 | 4 | 3 | 1 | 2 | — | 3 | 28 |
| Surface | — | — | — | — | — | — | 1 | — | — | — | 1 | — | 1 | 3 |
| Total | 8 | 13 | 3 | 2 | 5 | 3 | 4 | 7 | 10 | 5 | 7 | 1 | 11 | 79 |

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irrespective of their size and function. The implements are further distinguished as *unifacial* and *bifacial* depending on whether the working edge is obtained by unilateral (one directional) or bilateral (two directional) flaking.

Over 50 per cent of the choppers are made on pebbles or split-pebbles while the rest are generally worked on tabular or massive quartzite lumps, and only very rarely on thick flakes. In selecting the raw material for the manufacture of choppers, the tool-makers seem to have preferred pebbles as discussed on page 13.

The majority of the choppers are of bifacial type and these are generally found in association with handaxes and cleavers. A few unifacial choppers occur at shallow depths in association with the Middle Stone Age industries.

## I. UNIFACIAL CHOPPERS AND CORE-SCRAPERS

(i) Steep straight-edged scraper-chopper on sub-triangular pebbles or blocks of quartzite.

**No. 76.** A large sub-triangular discoidal pebble is taken and is finely trimmed along the longer side producing steeply dipping shallow scars, which form a straight or slightly curved scraping edge. Along the shorter side the tool shows bold alternate flaking. Slightly retouched on the scraper-edge. ADG-6, 1.50 m (pl. 10).

(ii) Steep convex-edged core-scrapers on pebbles.

**No. 77.** A sub-triangular pebble is steeply worked into a broad convex scraping edge, leaving two-thirds of the pebble portion for suitable hand-rest. The scar-beds are shallow and blade-like. The tool is further retouched along the edge. Weathered. ADG-6, 1.50 m (pl. 10).

**No. 78.** A small discoidal pebble is worked along two-thirds of the circumference, first by producing steep flake-scars, and then by secondary retouch on the resulting edge. ADG-12, 20-25 cm (pl. 10).

**No. 79.** Same as above but with further flaking on the upper surface. ADG-12, 30 cm (pl. 10).

**No. 80.** A sub-triangular scraper on a flat pebble. The flaking has been done all along the margin leaving only a small portion unworked. The edge is finely retouched and sharp. Almost fresh. ADG-12, 26 cm (pl. 10).

**No. 81.** Similar to **No. 80**. ADG-7, 45.76 cm (pl. 10).

(iii) Steep convex-edged core-scrapers on tabular quartzite blocks.

**No. 82.** A tabular semi-rolled piece of rock is taken and flaked steeply along half the periphery producing a convex-scraping edge. The scars are small and flat and the resulting edge is even. Slightly weathered. ADG-7, 1.50-1.60 m (pl. 10).

**No. 83.** Same as **No. 82**, with the steep edge extending over nearly three-fourths of the periphery. Slightly worn. ADG-7, 65-80 cm (pl. 10).

(iv) Steep double sided core-scrapers on lumps.

**No. 84.** An ovoid quartzite block is steeply flaked along the two long sides producing two scraping edges. Little worn. ADG-1, 25-40 cm (pl. 10).

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## II. BIFACIAL CHOPPERS

(i) Bifacial choppers on tabular pebbles with a short chopping edge.

**No. 85.** A tabular pebble is worked alternately on one side of the rectangle producing large scars — two on one side and one on the other. The rest of the pebble is unworked. The scar beds are large and deep. Unrolled and fresh. ADG-1, 60 cm (pl. 11).

**No. 86.** Made on a small tabular rock, the edge is obtained by alternate flaking on one of the sides — two flakes from the front and one flake from the underside. The edge is a little oblique and even. Almost fresh. ADG-5, 20-30 cm (pl. 11).

(ii) Bifacial choppers on ovoid pebbles with short edge.

**No. 87.** A pebble of tabular habit is worked alternately to produce large triangular flake-scars, two on one side and one on the other which meet in a point. This tool could also serve as a borer. Unrolled. ADG-6, 1.50 m (pl. 11).

**No. 88.** Similar to **No. 87**. The working edge is short and wavy. Fresh. ADG-1, 1.30-1.40 m (pl. 11).

(iii) Bifacial choppers on small pebbles.

In this group there are four tools made on small ovoid pebbles, three on quartzite and one on vein quartz. The flaking has been carried out alternately along half the periphery and the resulting edge is convex and wavy. On account of their small size these implements may have been utilized as scrapers.

**No. 89.** Made on a quartz pebble. Fresh and unrolled. ADG-7, 92 cm (pl. 10).

**No. 90.** Made on quartzite. Heavily weathered. ADG-6, 1.50 m (pl. 10).

(iv) Bifacial choppers on small quartzite blocks.

All the six specimens of this group are similar to those described above under (iii). They are made on quartzite blocks and not on pebbles.

**No. 91.** ADG-1, 1.50 m (pl. 10).

**No. 92.** ADG-7, 1.00-1.20 m (pl. 10).

(v) Bifacial pebble choppers with broad cutting edge.

**No. 93.** A medium-sized chert pebble with a rectangular outline is flaked alternately producing large, but flat, scars — two on one side and one on the other, which form a sharp and wide wavy edge that is further retouched in places. The cortex covered butt is angular. Fresh. ADG-2, 30 cm (pl. 11).

**No. 94.** Made on a rectangular pebble, the chopping edge is obtained by alternate strokes along the three sides, and the fourth unworked side forms a butt. The edge is convex and due to irregular flaking and the laminated nature of the rock it is uneven. Fresh. ADG-1, 16 cm (pl. 11).

**No. 95.** A speroidal pebble of veined and cherty quartzite shows bold alternate flaking resulting in an oblique and broad chopping edge. From one side of the edge all the three flakes removed are blade-like. Weathered due to its burial in the lateritic clay, but the edges of the scar-beds are fairly sharp. ADG-6, 1.70 m (pl. 11).

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**No. 96.** A semi-spherical block with wedge-shaped cross-section is flaked bilaterally producing convex and more or less even sharp edge. The flake-scars are shallow and bladelike. The thicker unworked side of the tool serves as a butt. Weathered. ADG-6, 1.05 m (pl. 10).

(vi) Bifacial choppers on split-pebbles.

**No. 97.** A large sub-triangular split-pebble has been trimmed alternately along two sides by removing large but shallow flakes four on the front and three on the underside, leaving the cortex at the base. The tool is secondarily retouched at the projecting point. The working edge is wavy and sharp. Fresh and unrolled. ADG-6, 1.70 m (pl. 11).

**No. 98.** An ovoid split-pebble is boldly flaked alternately along the side parallel to the long axis, producing a highly sinuous and convex chopping edge. The opposite side is covered by a ribbon of pebble cortex and provides a suitable hand rest. Almost fresh. ADG-6, 1.45 m (pl. 10).

(vii) Heavy choppers on pebbles or very thick flakes.

**No. 99.** A very thick end-flake obtained from a semi-rolled pebble is boldly flaked bilaterally along one of the long sides, producing large scars and a wavy edge. Fresh. ADG-1, 0.80-1.20 m (pl. 10).

**No. 100.** A tabular pebble is flaked along the long side resulting in a wavy edge and a point. Little worn. ADG-Sf. (pl. 11).

**No. 101.** This tool is made on a thick flake but in flaking technique and form it is similar to **No. 100.** The working edge extends along the two sides of the triangular flake while the third side is the butt end. Weathered due to its association with the red lateritic clay. ADG-6, 1.50 m (pl. 11).

(viii) Bifacially worked side-scraper or a stone-knife.

**No. 102.** A long wedge-shaped block is worked alternately along the thinner side producing a broad, more or less even, and slightly convex edge. At the base of the edge a notch has been made. The thicker side is well-prepared to serve as a back to the knife-like cutting edge. ADG-6, 1.35 m (pl. 10).

### III. MISCELLANEOUS CHOPPERS

Nearly 11 pebbles obtained from the excavation carry two or three flake scars. No definite scraper — or chopper — edge is, however, achieved. These specimens, therefore, may be classified as miscellaneous chopping pebbles. (Not illustrated).

## H. DISCOIDS AND CORES (Table 4)

Discoids also form a large group second only to the choppers. The majority of them, however, do not possess a round symmetrical form with alternate flaking extended along the entire periphery. The next common types are of diminutive discoids, which generally occur in association with the Middle Stone Age tools. There is a small number of bi-conical discoids, which also occur along with the small discoids.

A small number of cores was obtained in the excavation. None of these has scar-beds large enough to show that they served as nuclei for flakes.

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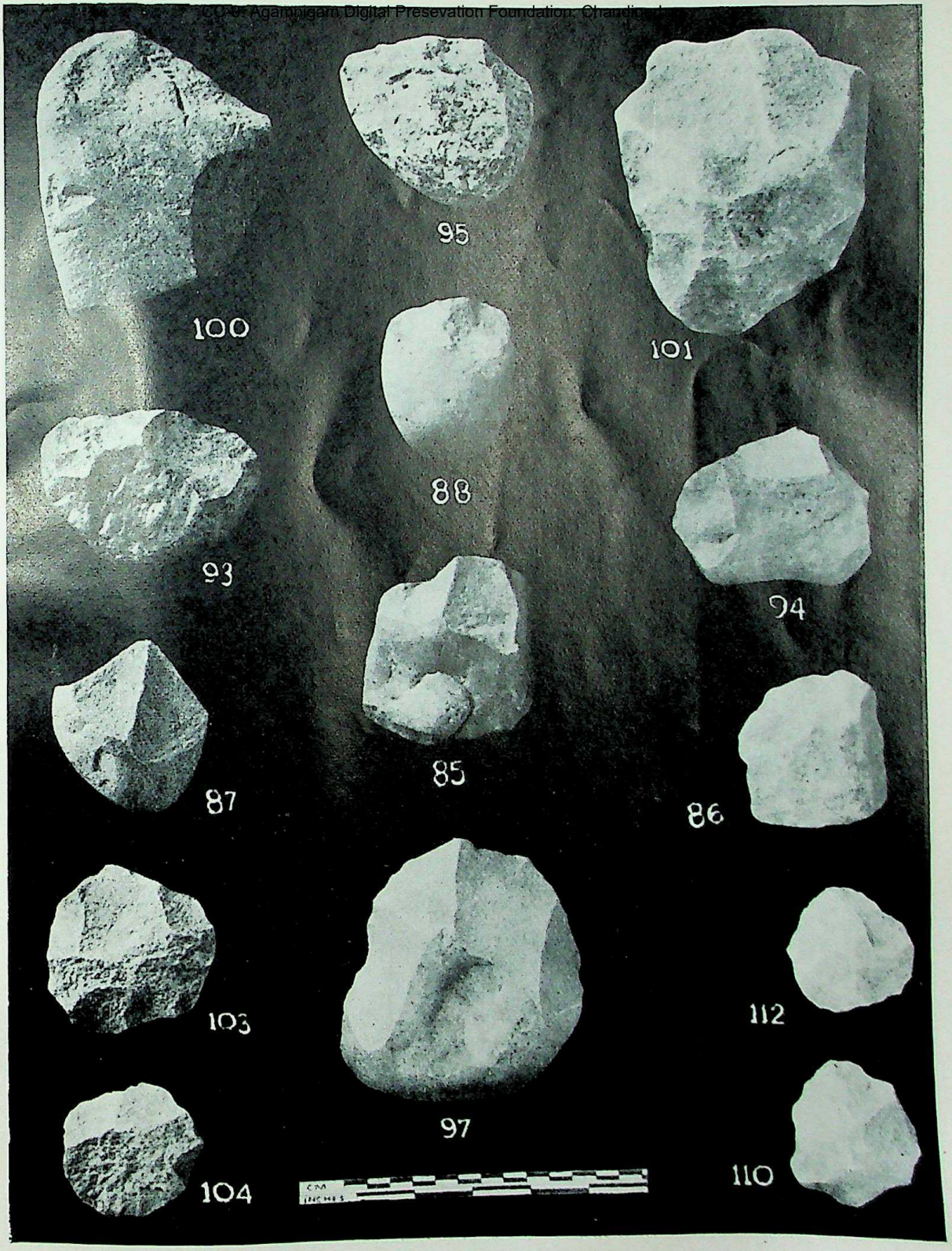


Plate 11. Early Stone Age tools : Choppers

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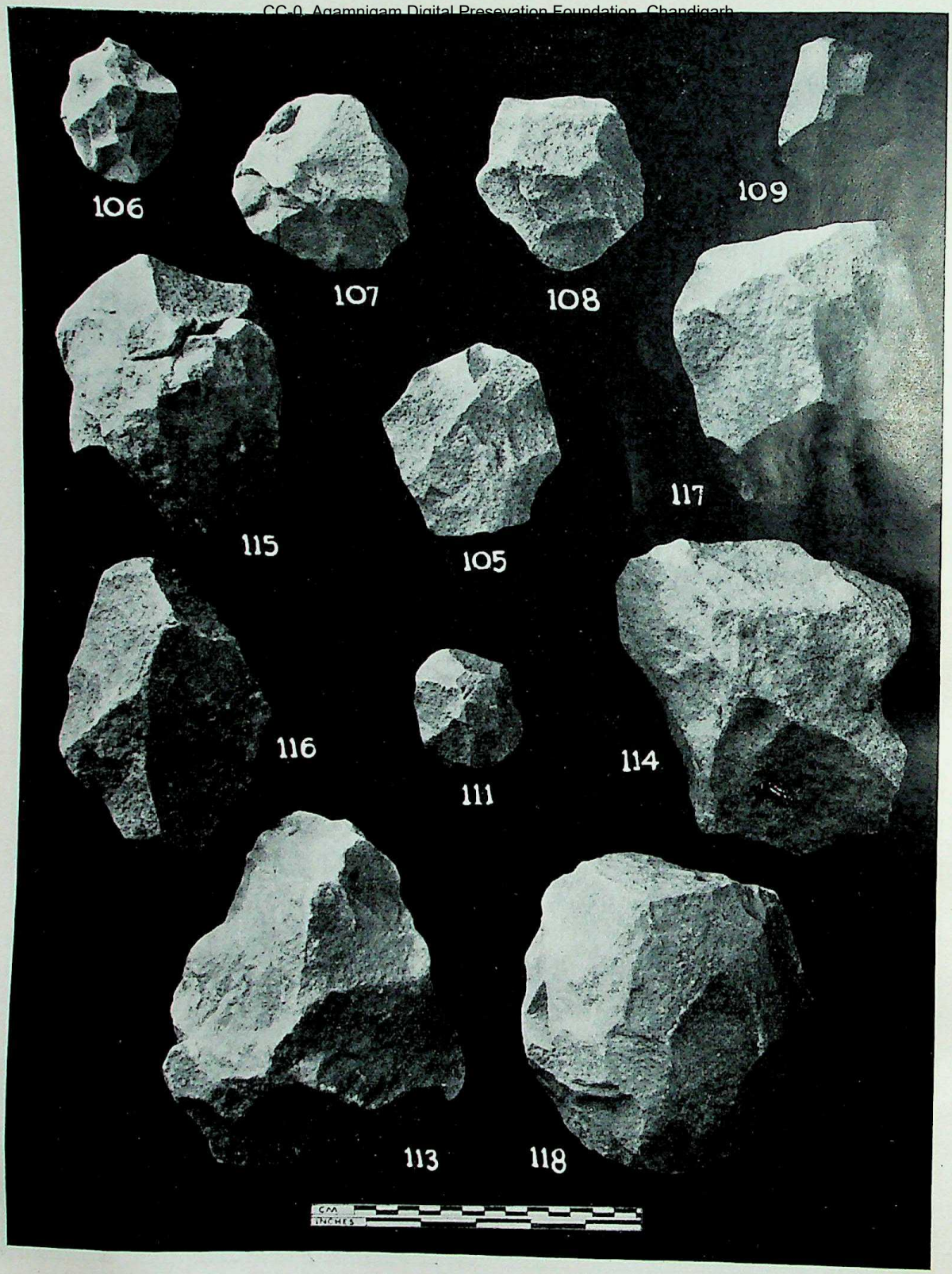


Plate 12. Early Stone Age tools : Choppers and Cores

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## DISCOIDS

(i) Discoids on thick flakes.

**No. 103.** A thick round flake is alternately flaked along the entire periphery to produce a pronounced wavy edge. The scar-beds are small and shallow. The underside which is a primary flake surface is made flat by flaking, while the upper surface is convex. Slightly worn. ADG-6, 50 cm (pl. 11).

**No. 104.** Similar to **No. 103** but of a smaller size. ADG-1, 50-60 cm (pl. 11).

**No. 105.** Similar to **No. 103** but of a larger size ADG-7, cm. (pl. 12).

**No. 106.** This beautiful specimen is made on a grey cherty quartzite. It has a somewhat rhomb-shaped outline. The upper surface has a pyramidal appearance due to the convergence of four medial ridges in the centre. On the underside, which is a primary flake surface, the thick bulbar area is knocked off by a large flake. The edge around is formed by alternate flaking. Nearly half of the edge is further retouched on the front by step-flaking. Fresh. ADG-2, 70-100 cm. (pl. 12.).

(ii) Discoids with partial flaking along the margin.

**No. 107.** A lump of quartzite is alternately flaked along nearly three-fourth of the margin. The scar-beds are shallow and irregularly disposed. Slight secondary trimming is apparent on the edge. Weathered, but the scars are not effaced. ADG-6, 1.05 m (pl. 12).

**No. 108.** This specimen is similar to **No. 107** but in this case the flaking is more regular. Some of the scars are due to step-flaking. Weathered and slightly worn, ADG-6, 1.35 m (pl. 12).

(iii) Bi-conical cores.

**No. 109.** A chocolate coloured cherty quartzite is trimmed bi-laterally to produce a fine equatorial wavy edge around the periphery. The flake-scars are small and U-shaped. Fresh. ADG-2, 60-75 cm (pl. 12).

**No. 110.** Almost similar to **No. 109** this tool is made of grey quartzite, the poor texture of which has not produced fine scars as in **No. 109.** Fresh. ADG-1, 50-60 cm (pl. 11).

**No. 111.** This specimen is smaller than the two described above but the flake scars on the underside are not regularly spaced. Weathered and slightly worn. ADG-6, 1.10 m (pl. 12).

(iv) Diminutive discoids on pebbles or rock-lumps.

**No. 112.** A small discoid on a quartzite lump is alternately flaked around the periphery, producing a mild wavy edge. Weathered. ADG-7, 1.00-1.20 m (pl. 11).

## CORES

**No. 113.** A sub-triangular core on a quartzite block with flake scars of two directional flaking on the right side. The flake scars indicate removal of thin flakes of triangular or rectangular outline. The flaking on the other two sides is irregular. The resulting scar-beds on both the surfaces intersect and form a keel on either face. This specimen may also have served as a heavy side-chopper. Fresh. ADG-11, 1.50-1.70 m (pl. 12).

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**No. 114.** This specimen is similar to **No. 113** but the flaking in this case is alternate and carried out practically along the entire margin. Little weathered. ADG- 14, 5.30 mm (pl. 12).

**No. 115.** Somewhat conical in shape, the flaking in this core is alternate as in **No. 114.** Slightly weathered. ADG-6, (pl. 12).

**No. 116.** Ovoid in outline and flaked in two directions along the upper half portion. It resembles a handaxe. ADG-Sf. (pl. 12).

**No. 117.** Similar to **No. 113** but of conical shape and flaked alternately. Fresh. ADG-6, 1.35 m (pl. 12).

**No. 118.** A sub-spheroidal core flaked randomly all over the body. The resulting scars are shallow. Fresh. ADG-1, 50-60 cm (pl. 12).

### (v) MIDDLE STONE AGE INDUSTRIES

Immediately overlying the deposit containing the Early Stone Age artefacts, is another tool-bearing talus made up of small rock fragments and pale brown clay. Its presence is very well-marked in Trench ADG-7. In this trench these tools occur generally above the layers yielding handaxes and cleavers, and are successively overlaid by the deposits containing microliths. Due to heavy rubble accumulation the section in trench ADG-2 was not well defined. It may be noted here that nearly half of these tools were obtained from these two trenches alone, while they were met with very sparingly in other trenches.

All the tools of this assemblage are smaller than those of the Early Stone Age, and larger than the microliths. They are mostly made on the same quartzite and sandstone on which are worked the implements of handaxe facies. Very rarely are they made on chert and never on chalcedony or quartz. Chronologically the industry belongs to the Early Post-Acheulian stage. On typological considerations the tools can be grouped under the Indian Middle Stone Age industries for, on all counts, they compare well with those found at the rich Middle Stone Age sites elsewhere in this country.

The collection of nearly 80 tools of this category is an unspecialized industry comprising points and scrapers as the leading tool-types. They are worked either on flakes or nodules. Besides these, there are blades or flake-blades, occasionally retouched as side-scrapers and other showing use-marks. The flakes, which include pebble flakes and those removed from the slabs of rocks and a few discoidal cores are also present. The flakes invariably have an unfaceted striking platform inclined at angles measuring 90° or more to the primary flake surface. Some flakes that have flake scars on the front-occasionally converging flake-scars — seem to have been knocked off from the cores which were partially prepared, although the striking platforms of such flakes do not show any faceting like in the Levellois technique.

No cleaver was met with in association with these tools. The few stray specimens of handaxes which were encountered were worn and weathered and belonged to the earlier levels. None of these was a fresh specimen. Thus both these typical forms of Early Stone Age were completely lacking in this industry. The manufacturing technique, as depicted in the flakes and cores, was not much different from that observed in the earlier industries. The fine and delicate retouch as seen on the points

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and scrapers, and also the production of more and more blade-like flakes were the noteworthy features of this Middle Stone Age industry. It should, however, be mentioned here that, unlike the earlier artefacts, these Middle Stone Age tools had no standardized forms. Thus, on technological grounds, the industry should be termed as Late Acheulian. But, on account of the unspecialized character of its implement types, this industry, as stated above, would rather seem to belong to the Middle Stone age.

## (vi) TYPOLOGY AND DESCRIPTION OF ILLUSTRATED SPECIMENS

The pointed tools consist of borers and other varieties of points. The borers are usually made on flakes and rarely on nodules. On the other hand the points are made exclusively on flakes. All the points are worked unifacially only. In the simple points special mention should be made of a triangular point (**No. 9**) in which advantage is taken of a plain striking platform of the side-flake. The secondary retouch is practically nil.

In a leaf-shaped point (**No. 11**) the differently inclined facets of the cleavage planes have been conveniently utilized to determine the final shape of the point, again resorting to a minimum of chipping. In the tanged points **No. 13** is an interesting specimen. It is made on a thick pebble flake having extensive flaking on the primary flake surface but no work on the other side.

The other tanged point (**No. 14**) is a typical arrow-head.

The scrapers are made either on flakes, on diminutive pebbles, or on split pebbles. Common types in the flake scrapers are, side-scrapers, one of which is beautifully made on a blade-like flake (**No. 23**) by retouching both the long edges. The other types are convex- and concave-scrapers. In the core- or pebble-scrapers a few are steep core-scrapers, trimmed only in one direction (unifacial scrapers). Of these, **No. 19**, is on a split pebble or a thick flake from the cherty quartzite, while **No. 18** is on a quartzite split-pebble. Both of them are steeply worked around nearly three-fourths of the periphery. **No. 16** has long, steep blade-like scar-beds and a more or less rectangular base. It is made on a rock lump.

Another group is that of bifacially worked scrapers on small pebbles or split pebbles. **No. 21** is on a split pebble finely trimmed alternately along two-thirds of the periphery, the remaining pebble surface being left unworked to provide suitable grip. This tool also has a borer tip, and thus could have been used for a double purpose. **No. 22** is on a flat chert pebble but in this specimen the flaking is of a somewhat crude type.

The proportion of blades or flake-blades in this collection is very significant. All these blade-like flakes are obtained from quartzite blocks. Compared to the microlithic blades they are thick. A few of them belong to the category of backed blades, although generally, the back is not prepared.

The simple unworked flakes outnumber the flake-blade types. Some of the former are obtained from pebbles and such specimens are elaborately trimmed on the side of the primary flake surface. In other types the sub-triangular flakes are common.

Discoids form a small number and excepting their smaller size, in the technique,

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they are in no way different from those found in the Early Stone Age industries.

Both in terms of its technological characters and tool-types this industry is comparable to Midddle Stone Age industries noticed in other parts of India. The presence of a significant quantity of blades, however, shows its greater affinity with the Wainganga-B[2] industry in Central India.

A. BORERS

**No. 1.** Made on a sub-triangular side-flake from a pebble. Retouched only on the two sides converging into a projecting borer end. The third side covered by pebble cortex forms the butt. Fresh. ADG-7, 50-65 cm (pl. 13).

**No. 2.** This is made on an oval end-flake. Flaked diagnonally on the front so that two of the scars intersect and form a borer end. Only the bulb is removed from the underside. Slightly worn. ADG-6, 1.4 m (pl. 13).

**No. 3.** Worked on a tabular rock piece. Steeply flaked along the periphery producing a marked borer point. Weathered. ADG-6, 1.50 m (pl. 13).

**No. 4.** A rectangular flake carrying blade-like scars on the front. Probably removed from a blade core. From the other side — the primary flake surface — only the bulb is removed. Retouched near the point and used as a borer. ADG-7, 75-90 cm (pl. 13).

B. POINTS

I. Simple points on sub-triangular flakes.

**No. 5.** A sub-triangular flake entirely flaked on the front, while the underside is a plain primary flake surface. Slightly worn. ADG-10, 1.55 m (pl. 13).

**No. 6.** An almond-shaped pebble-flake is finely flaked and retouched on the underside. ADG-7, 65 cm (pl. 13).

**No. 7.** Similar to **No. 6** having converging flake-scars on the obverse and more marginal retouch on the reverse. ADG-1, 35 cm (pl. 13).

**No. 8.** Made on a sub-triangular flake which is flaked on the margin so that the scars meet in a medial ridge on the underside. ADG-6, 1.20 m (pl. 13).

**No. 9.** A symmetrical triangular flake from a pebble is worked limitedly in the left corner on the dorsal face while the ventral side is trimmed a little near the side marked by the plain striking platform. ADG-10, 1.35 m (pl. 13).

**No. 10.** Somewhat similar to **No. 8** but in this specimen there is more flaking on the front. ADG-7, 75-90 cm (pl. 13).

II. Leaf-shaped points on flakes.

**No. 11.** An oval end-flake is trimmed slightly on the upper surface with the result that a longitudinal scar meets the plain cleavage surface and forms a medial ridge while the other cleavage surface meets a scar on the right to form a point. Secon-

2. R. V. Joshi, Middle Stone Age in India, *Atti del VI Congresso Internazionale delle Scienze Preistoriche (Rome)*, 1966, pp. 276-280.

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Plate 13. Middle Stone Age tools : Borers and Points

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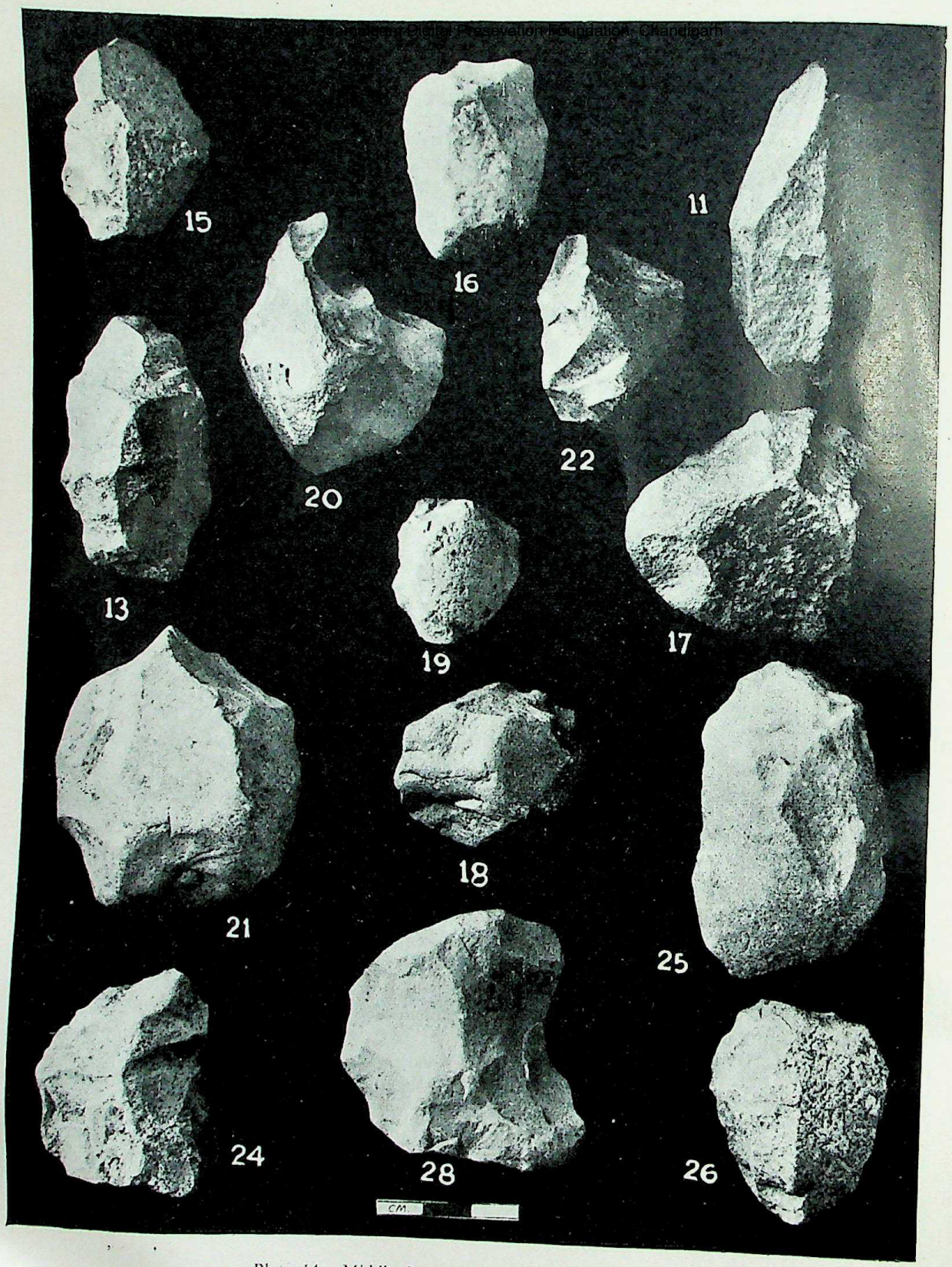


Plate 14. Middle Stone Age tools : Scrapers

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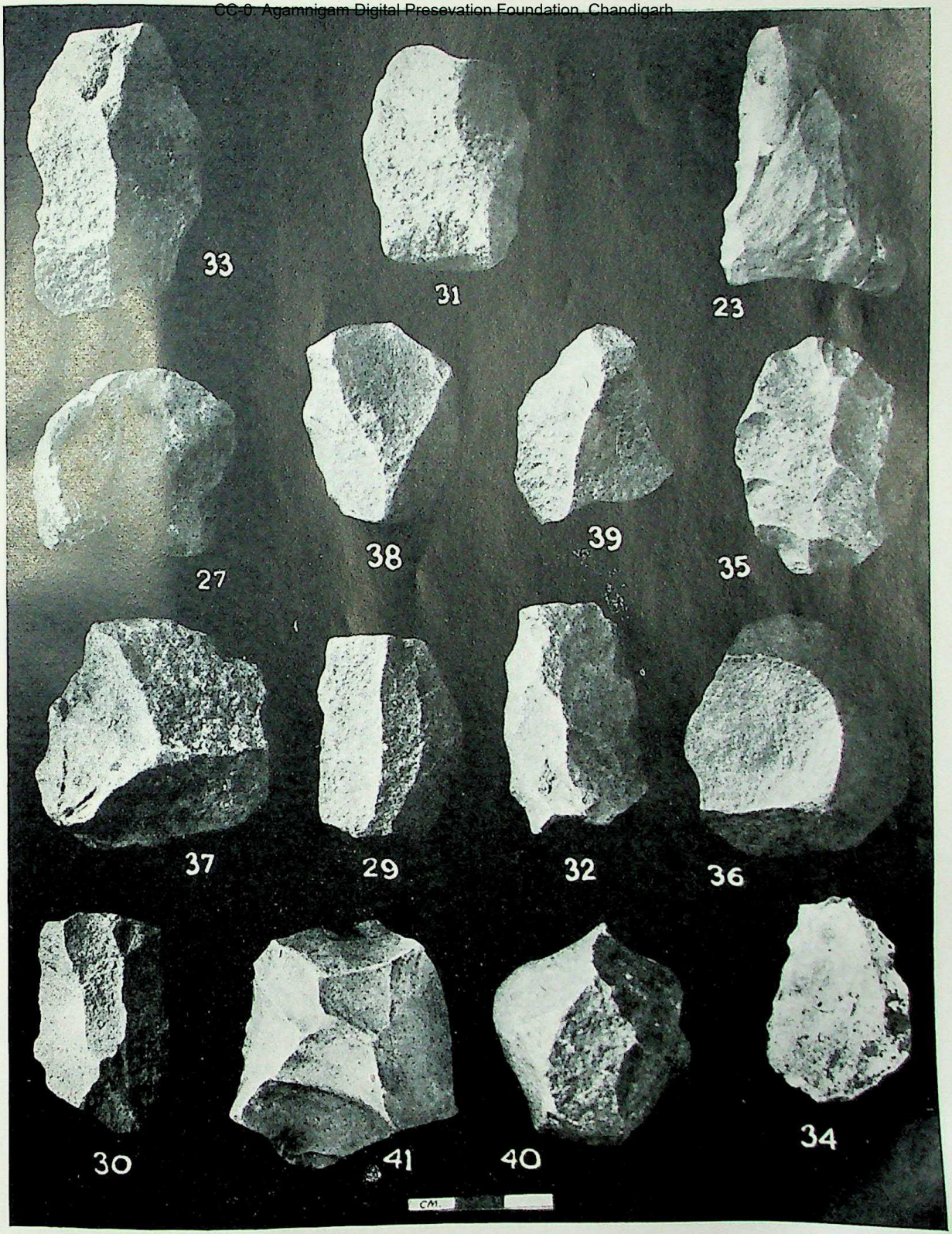


Plate 15. Middle Stone Age tools : Flakes

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darily retouched on the right edge of this side. The underside is unworked and broken on the right edge. Slightly worn. ADG-12, 0.70 to 1.00 m (pl. 14).

**No. 12.** A leaf-like side-flake from a patinated pebble is taken and finely retouched on the sides towards the point. The flaking on the upper surface has formed a transverse keel leaving a small cortex-patch on the base. The primary flake surface is unworked. Fresh ADG-8, 1.60 m (pl. 13).

III. Tanged and shouldered points.

**No. 13.** A thick oval end-flake from a pebble is elaborately flaked on the underside along the margin so that the resulting scars on either side at the base have caused an incipient tang. The upper pebble surface is left unworked. Fresh. ADG-1, 45 cm (pl. 14).

**No. 14.** A beautiful specimen having a well-defined tang and symmetrical point. Flaking is seen only on the upper surface. An arrow-head on pinkish quartzite. Fresh. ADG-2, 44-55 cm (pl. 13).

**No. 15.** An end-flake of a yellowish-grey pebble having three-fourth chipped upper surface is taken and little retouched. The rest of the portion is covered by a pebble cortex. A single shouldered point. The undersurface is a plain primary flake surface. ADG-7, 68-77 cm (pl. 14).

C. SCRAPERS

I. Steep core scrapers.

(a) Unifacial type.

**No. 16.** A thick lump of quartzite is steeply flaked along the margin. The scars are blade-like. The base is uneven and rectangular in outline. Almost fresh. ADG-7, 54-60 cm (pl. 14).

**No. 17.** On a discoidal pebble of brown quartzite. The flakes are removed along the periphery from one side and the resulting scraping edge is convex. Weathered. ADG-2, 50 cm (pl. 14).

**No. 18.** On a short split-pebble step flaking is carried out along the circular margin producing a wide convex edge. The controlled flaking is evident from stepped scar-beds. On the underside 2 or 3 flakes are removed as a result of which the original even surface of the split pebble has become concave. Fresh. ADG-1, 40-70 cm (pl. 14).

**No. 19.** Similar to **No. 18**, but of a smaller size and made on a thick chert flake of grey colour. From the plain undersurface steep flakes are removed along the margin to form a fine convex scraping edge. Fresh. ADG-2, 45-50 cm (pl. 14).

**No. 20.** Made on a thick grey-brown chert pebble, the technique of flaking is similar to that in **No. 18.** Fresh. ADG-12, 26 cm (pl. 14).

(b) Bifacial core scrapers.

**No. 21.** Made on a split pebble of cherty grey quartzite, the tool is alternately flaked along two-thirds of the margin resulting in a mildly scalloped edge. The flaking on the front is limited to the circumference only leaving the rest of the pebble surface unworked. The specimen is slightly pointed and it could also have served as a borer. Fresh. ADG-8, 0.75-1.00 m (pl. 14).

**No. 22.** Made on a greenish chert pebble of sub-rectangular outline, it is bilate-

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rally worked on the two adjacent sides producing a slightly wavy edge. The unworked pebble part serves as a butt. Fresh. ADG-10, 15-20 cm (pl. 14).

II. Scrapers on flakes and flake-blades.

**No. 23.** A quartzite flake-blade of trapezoidal shape is very finely retouched in one direction along the two long sides producing a side-scraper on a blade. Fresh. ADG-5, 35-40 cm (pl. 15).

**No. 24.** This is a short crescentic flake retouched on the chord by one directional trimming forming a side-scraper with a curved back. A little worn. ADG-7, 40-50 cm (pl. 14).

**No. 25.** A sub-rectangular thick flake-blade from a quartzite pebble, larger than **No. 23** and **24** is worked along the right edge into a side-scraper, leaving the remaining pebble surface on the front unworked. Fresh. ADG-7, (pl. 14).

**No. 26.** A small sub-oval flake from a quartzite pebble is retouched along nearly three-fourths of the margin on the upper surface. A convex side-cum-end scraper. Fresh. ADG-7, 50-60 cm (pl. 14).

**No. 27.** A scraper made on a roughly round flake. Worn. ADG-2, 60 cm (pl. 15).

**No. 28.** A hollow scraper on a crescentic thick flake. A little worn. ADG-7, 50-60 cm (pl. 14).

### D. BLADES

**No. 29** and **30** have thin parallel sided blade scars on the front and plain undersurface. The edges are slightly serrated, perhaps due to use. Almost fresh. **No. 29** ADG-8, 1.38 m (pl. 15). **No. 30** ADG-6, 30 cm (pl. 15).

Specimens **Nos. 31, 32** and **33** are thick on the left edge and thin on the right edge. In **No. 29** the thick side is little worked while in other specimens it is not worked at all. In all the specimens, however, this thick edge serves as a back for the sharp working edge on the right.

**No. 31.** ADG-7, 42 cm (pl. 15).

**No. 32.** ADG-7, 60 cm (pl. 15).

**No. 33.** ADG-2, 85 cm (pl. 15).

**No. 34** is a non-descript flake-blade, having white patination. ADG-7, 1.20 m (pl. 15).

### E. FLAKES

As most of the tools of this industry are made on flakes, the simple unworked flakes that are not converted into tools occur in a large number. Broadly two categories may be distinguished viz., (a) pebble-cortex covered flakes, and (b) flakes taken from tabular rocks. None of these, however, possesses a faceted platform and the flaking angle is also invariably obtuse. The positive bulb of percussion is generally not prominent, sometimes it is even flat thereby showing the use of a soft hammer for knocking off the flakes from cores.

a. Out of seven pebble flakes **No. 35** and **36** are illustrated. **No. 35** is from a grey-yellow quartzite pebble, the primary flake surface of which is elaborately flaked leaving a faint central keel, while in **No. 36** this undersurface is plain and its upper surface carries two large scars.

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b. **Nos. 37, 38** and **39** are sub-triangular or oval in outline. In **Nos. 37** and **38** the front carries one or more scars while the underside is unworked.

**No. 35.** ADG-2, 20 cm (pl. 15).

**No. 36.** ADG-6 Sf. (pl. 15).

**No. 37.** ADG-6, 1.20 m (pl. 15).

**No. 38.** ADG-5, 12 cm (pl. 15).

**No. 39.** ADG-7, 90 cm (pl. 15).

F. DISCOIDS AND CORES

This type is insignificant in proportion to the other types. Excepting their small size they are no different from those found in the Early Stone Age industries (p. 32). **Nos. 40** and **41** are illustrated here. A few cores and nodules also occur but such types have no special form.

**No. 40.** ADG-12, 30 cm (pl. 15).

**No. 41.** ADG-7, 92 cm (pl. 15).

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# 3. LATE STONE AGE (MESOLITHIC)

## (i) THE SITE AND ITS STRATIGRAPHY

As stated on page 4 the microliths were obtained from Nos. 1, 2, 10 and 12. The deposit in which these tools occur on Adamgarh hill is the black clay. It is a massive deposit without any partings or layers produced by water action. This deposit lies either directly on the local quartzite rocks or rests unconformably over the eroded red clays of lateritic origin There is thus a clear stratigraphic break between the underlying red clay yielding Early Stone Age industries and the black clay containing microliths.

The mineral contents and chemical composition of this black clay are the same as that of the black-cotton-soil occurring on the Narmada terrace surrounding the Adamgarh hill. The clay does not show any soil profile indicative of its *in situ* formation. Its occurrence on the top of the hill at an elevation of about 25 m above the Narmada plain may be attributed to wind action. Even to-day during the summer this region experiences severe dust storms when quantities of dry, loose, surface soil are lifted up and in course of time deposited at various elevations. It may be that throughout the period of microlithic habitation, and perhaps even during the later periods here wind activity was more intense and spread over a longer duration each year than at present[1]. Under such circumstances a huge quantity of black surface soil could have been deposited on Adamgarh hill filling up the uneven hill surface and in places even penetrating through the rock crevices. This wind blown clay, however, had not entered into the deep and more or less fully enclosed rock-shelters, for, in such places microliths occur in a brownish earth derived from the underlying laterite clay which contains a few stray Early Stone Age tools.

## THE TRENCHES

There is not much difference in the stratigraphy revealed in different excavated trenches, and therefore the details of only some of the more important trenches are given below :

### TRENCH ADG-1 (Fig. 8)

The site is bounded on the west by a quartzite cliff having a slight frontal projection. Originally, perhaps there was a large natural rock-shelter with a more extensively projecting roof, which in course of time collapsed along the joint planes

1. There is no evidence of any mud structures, which could have been erected by the microlithic men. When the site was deserted from time to time, such mud houses, if at all they were there, made of black clay, would have caused accumulation of clay on this hill.

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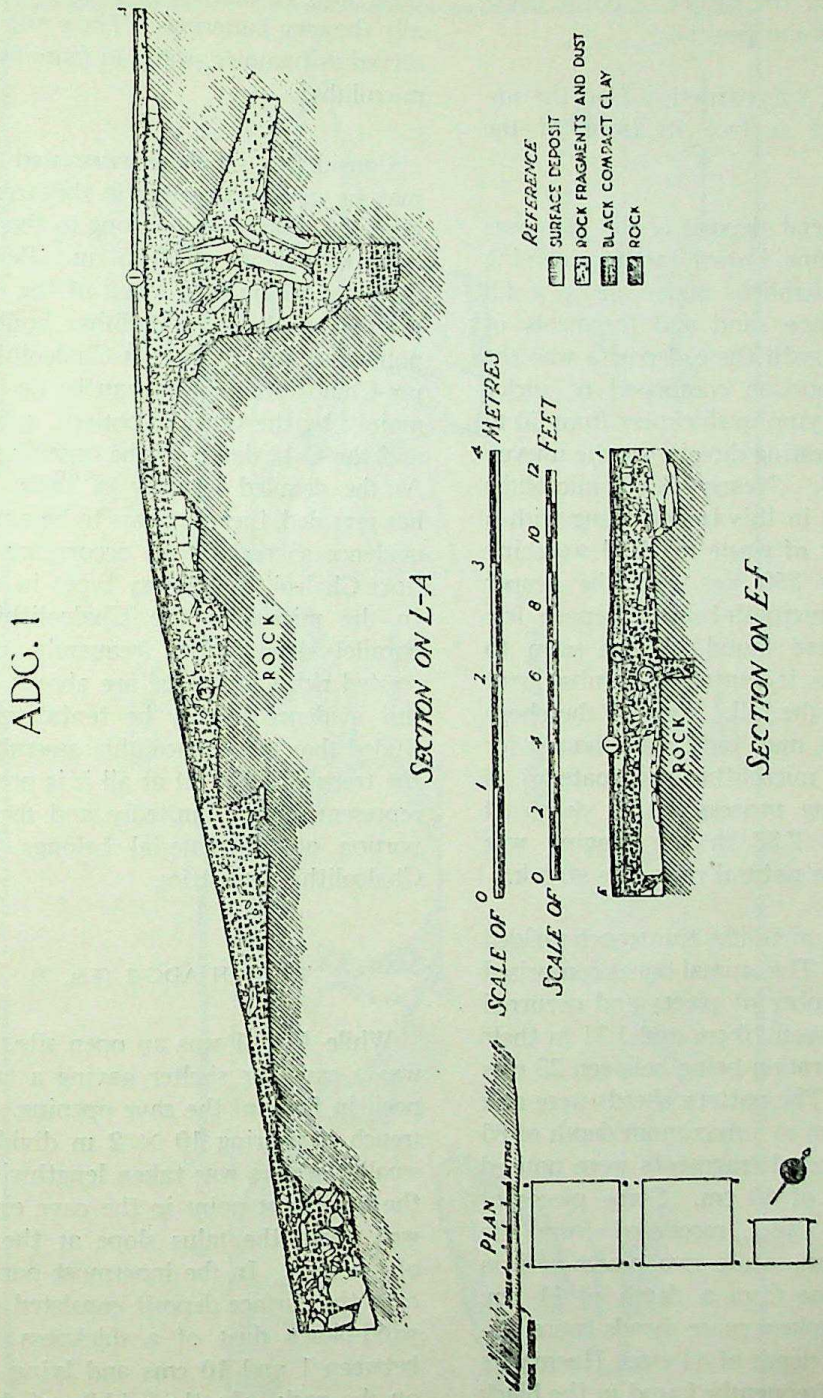


Fig. 8

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thereby shifting the earlier drip-line backward to its present position.

The digging was carried out on the undisturbed level surface in front of the shelter.

The superficial deposit of 2-3 cms was made up of fine brown earth containing one or two microliths underlain by a 4.5 cm layer of fine sand and fragments of rock. Underneath these deposits was the tool-bearing horizon comprised of sticky black clay varying in thickness from 50 to 150 cms and resting directly on the uneven rock outcrops. Nearly 5000 microliths were obtained in this trench along with a large quantity of waste material weighing approximately 250 kgs. In the deeper levels of the microlith-bearing deposit few palaeoliths were found. These seem to have got into it during the subsequent habitation on the hill. Some of the choppers and cores may have come handy for trimming the microlithic raw material in the tool-making process. At a depth of approximately 2.38 m the digging was stopped as the natural rock was struck.

Besides the microliths this trench yielded other objects. The animal bones comprised the larger number of pieces and occurred at depths between 10 cm and 1.21 m their major concentration being between 25 cms and 40 cms. The pottery sherds were met with from 3 cm to a maximum depth of 85 cm. The charcoal fragments were noticed upto a depth of 40 cm. Some pieces of glass bangles were recovered from the depth of 20 cm, while two pieces of iron fragments came from a depth of 11 cm. Some four broken mace heads were obtained from a depth of 41 cm. Haematite nodules were frequently found in the black deposit between 40 and 50 cm. This deposit also yielded rolled pebbles occasionally showing batterings. These might have served as hammer stones in manufacturing microliths.

Considering all these associated finds it may be summarized that in this trench the glass and iron objects belong to the deposit lying to a depth of 20-25 cm. Below the depth of 25 cm how much of the deposit, together with its microliths, bones, and pottery sherds, represents Chalcolithic and pre-Chalcolithic stages, can be determined mainly by the types of pottery, microliths, and the C-14 dating of the organic matter. As the detailed scrutiny of these objects has revealed, there appears to be a negative evidence as regards the occurrence of distinct Chalcolithic pottery types in ADG-1. In the microliths the Chalcolithic long parallel sided blades frequently showing crested ridge technique are absent. From this evidence it may be tentatively concluded that the Chalcolithic assemblage in the trench ADG-1, if at all it is present, is represented very limitedly and the major portion of the material belongs to pre-Chalcolithic industries.

### TRENCH ADG-2 (Fig. 9)

While ADG-1 was an open site, ADG-2 was a cave-like shelter having a talus deposit in front of the cave opening. A long trench measuring 10 × 2 m divided into smaller sectors was taken lengthwise from the innermost point in the cave extending well down the talus slope at the mouth of the cave. In the innermost part of the cave the surface deposit consisted of loose wind-blown dust of a thickness varying between 1 and 10 cms and lying directly on the rock. In the middle of the cave, below the 20 cm surface deposit, there

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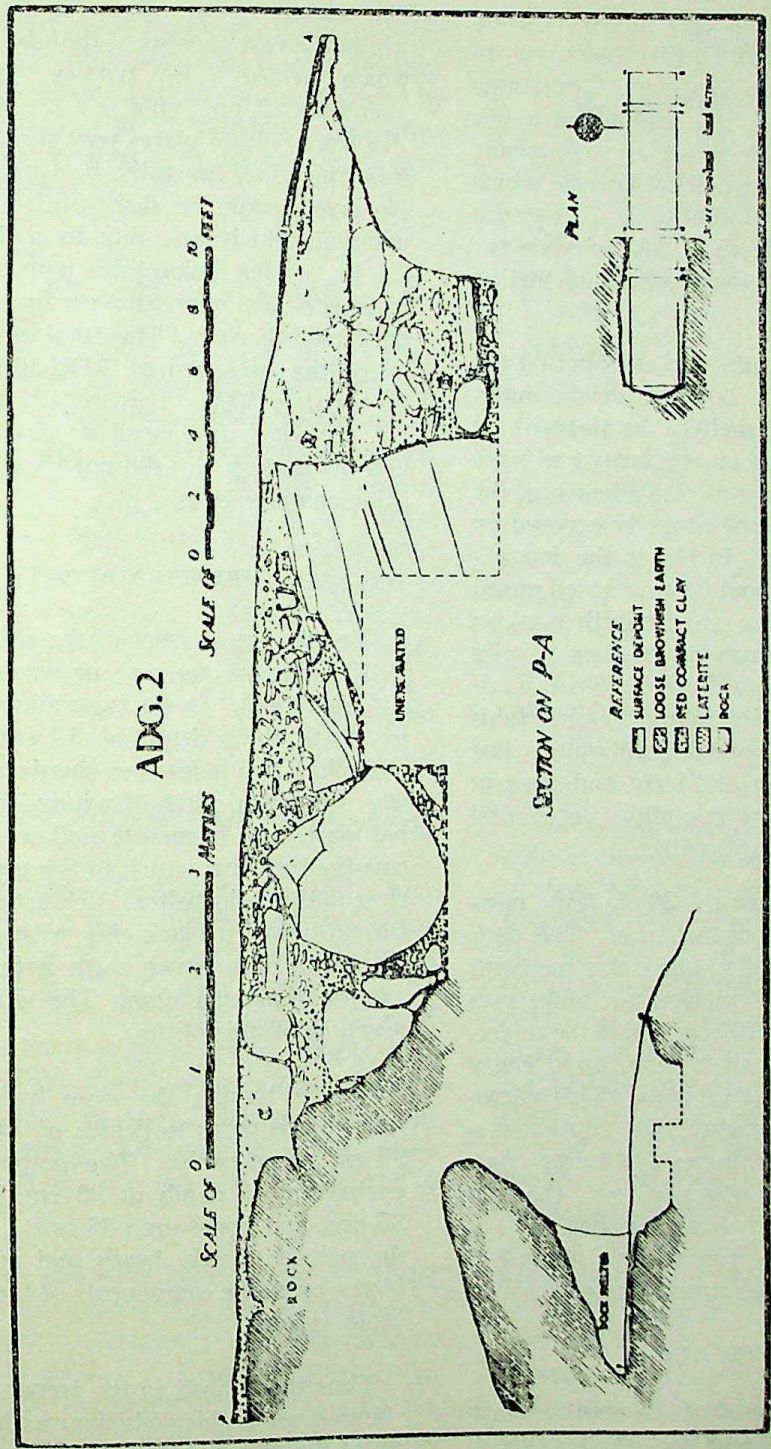


Fig. 9

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occurs a dark brown clay mixed with angular rock-debris, which was the microlith-bearing horizon at this site. Underlying it was the lateritic clay containing a few palaeoliths. Below this clay and resting on bed rock was the detrital laterite, which did not yield any kind of tools. The trench was dug upto a depth of 2.32 m when the laterite and rock blocks prevented further digging.

Due to natural pits and erosion and the occurrence of loose boulders on the outer-side of this cave-shelter, the deposits at shallow depths had no regularity and since the working space was limited each of the deposits could not be properly exposed by horizontal digging. In places, the deposits up to a depth of about 30 cm yielded mixed antiquities. At the cave mouth an iron spear-head and fragments of glass bangles were obtained from a depth of 18 cm. Outside the cave the irregularly sloping talus on the right side yielded antiquities like a terracotta object at 21 cm and glass at 18 cm. A few stray microliths were found along with these antiquities.

The deposit below the 30 cm level, however, showed less disturbance. The dark brown clay (instead of black clay met with in ADG-1 and 12) yielded microliths to a depth of about 80-100 cm and in the underlying red lateritic clays were found Early and Middle Stone Age tools. This microlith-bearing brown clay also contained a few pottery sherds, bones and rarely charcoal fragments. Compared with the rich microlith collections from the sites ADG-1, 10 and 12 this site yielded only about 240 microliths and their waste material.

### TRENCH ADG-10

This site is situated at the south-eastern corner of the hill near rock-shelter No. 4. The surface which slopes gradually towards the east consists of dark-brown clay which yielded a few pottery sherds and microliths. Underlying this was the massive black soil, in places very sticky, which was the chief microlith-bearing deposit. No layers could be distinguished in this material, which was dug to a depth of 2.5 m. A few palaeoliths, bones, pottery fragments, and charcoal were found in the dark reddish clay. The total number of microliths recovered at ADG-10 was approximately 5000. This trength, however, did not yield any metal or glass objects and the pottery also did not show Chalcolithic characteristics.

### TRENCH ADG-12

The site lies in front of the rock-shelter at the extreme northern or north-western end of the hill. In the excavation, brownish earth to a depth of 55 cm yielded microliths and a few pot sherds in which was a doubtful piece of painted black-on-red ware, and haematite nodules. At 60 cms the rock was struck in the trial trench close to the rock-shelter. Below the brownish earth was a black clay with irregular patches of dark brown earth, extending to a depth of about 1.10 m. This site yielded nearly 5600 microliths.

In this trength the glass bangles and iron objects occur to depths of 70 cm and 35 cm respectively. The pottery is reported upto a depth of 80 cm, beads at 35 cms, and bones upto 56 cms. A few of the pottery sherds, beads and microlithic blades recall the components of the Chalcolithic culture.

Thus the deposit in the trench ADG-12 shows considerable disturbance and mixing up of the objects of iron, glass and micro-

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liths even to the maximum depth to which this trench was dug. No definite reliance, therefore, can be placed on the stratigraphy and statistics of the microliths and other objects obtained from different levels from this trench.

### (ii) RAW MATERIAL

The microliths are made on a variety of coloured and clourless crypto-crystalline siliceous minerals of the chalcedony and chert groups. A few are made on non-crystalline quartz and nodules from the Narmada river bed, as none of these minerals is available in the rocks on Adamgarh hill. These minerals are mostly derived from the outcrops of Deccan Trap and Inter-Trappean formations of the region while a few may have come from the conglomerate beds of the Vindhyan system.

**TABLE–6**

**MICROLITHS FROM ADG-1**

| Types | Total |
|---|---|
| Points | 1938 |
| Borers & Awls | 23 |
| Triangles | 186 |
| Trapezes | 12 |
| Tranchets | 19 |
| Scrapers | 306 |
| Burins | 9 |
| Blades * | 2206 |
| Cores | 343 |
| Total | 5042 |

* This does not include the unclassified blades, bladelets and broken blades.

### (iii) THE MICROLITHIC INDUSTRIES

The total collection of microliths from all the dug out trenches from the Adamgarh hill is so huge that it would be proper to deal it trench-wise. However, a detailed study only of the material obtained from ADG-1 is given below. Rapid scrutiny of the microliths recovered from the other trenches shows that on the whole these collections do not significantly differ much from those from the trench ADG-1 (Table 6).

In the following pages, while discussing the various tool-types, the illustrated examples are cited mainly from those obtained from ADG-1. In some instances the specimens are taken from other trenches as well, if they contain more representative samples.

The points and blades together form the bulk of the microlithic implements. Each of these types may be divided into several sub-types. The primary distinction in the case of points is whether the tool is made on a nodule, a flake or a blade. The points on blades, which constitute the largest number are further distinguished by taking into consideration the extent and position of retouch on the blade made into a point. All the points are worked unifacially. Secondary trimming of points on flakes and blades is generally carried out in one direction (uniplanar points) but instances may be quoted in which there is inverse retouch on the margins partly from the dorsal side and partly from the ventral side of the flake or blade. A few of the crescents and crescentic points have been backed by bifacial trimming on the same edge producing a mild ridge due to

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the intersection of the scars (Helwan Technique).

In the case of blades, the basic types are simple blades and retouched blades. A further division of retouched varieties, is based on the same principles applied in the case of points. The crescentic or curved-back blades or lunates present some difficulty in their sub-division into points and blades. Some of the curved-back crescentic points may be grouped under the crescentic blades and *vice versa*. Each of these sub-classes of points and blades need not be taken as a standardized scheme for classifying microlithic industries. It is an attempt at a thorough evaluation of the various characters of the microlithic industry.

## (iv) TYPOLOGY AND DESCRIPTION OF ILLUSTRATED SPECIMENS

### A. POINTS (Table 7)

(a) Points on thick asymmetrical flakes. Fig. 10.

**No. 1.** Chert. White, patinated, sub-triangular, flake unifacially worked. The sides indented due to deep scars. Faint medial ridge and borer-like point. ADG-1, 40-60 cm.

**No. 2.** Brown chert. A thick blade-flake is retouched on one edge. ADG-1, 50-60 cm.

**No. 3.** Chalcedony. Simple flake, slight retouch on the right edge, awl-like point. ADG-1, 20-25 cm.

**No. 4.** Chalcedony Asmmetrical flake, a little oblique retouch on the right and an incipient tang at the base. ADG-1, 50 cm

(b) Points, on oval or almond-shaped flakes. Fig. 10.

**No. 5.** Milky quartz with yellow crust. A pebble flake of fine symmetrical oval form, no retouch, ADG-1.

**No. 6.** Grey chalcedony. Almond-shaped flake with medial ridge on the front, no retouch. ADG-1, 10 cm.

**No. 7.** Dark brown chert. Almond form, limitedly trimmed on the left edge. ADG-1, 25 cm.

**No. 8.** Yellowish grey chert. A large flake having prominent keel on the upper surface, a dished and plain striking platform with high flaking angle. ADG-1, 30-40 cm.

(c) Points on sub-triangular flakes. Fig. 10

**No. 9.** Brown chalcedony. Thick triangular flake, slightly retouched at the tip on the right edge. ADG-1, 10-20 cm.

**No. 10.** Chalcedony. A triangular flake from a tabular nodule, left side indented, retouched on the right side. ADG-1, 12 cm.

**No. 11.** Chalcedony. A triangular flake, blunted on the left side. ADG-1, 52 cm.

(d) Points on irregular flake-blades. Fig. 10.

**No. 12.** Chalcedony. A simple pointed blade with a notch on the right. ADG-1, 40-60 cm.

**No. 13.** Pink chalcedony. A thick blade from a pebble, retouched on the right side, and partly on the left side. ADG-1, 60 cm.

**No. 14.** Chalcedony. A short sub-triangular blade, with constriction on the left side at the base imparting a shoulder-like feature. Not retouched. ADG-1, 40-50 cm.

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## TABLE–7 MICROLITHS : POINTS

| | ON FLAKES | | | | | | | ON BLADES | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | i | j | k | l | m |
| Depth in cm. | On thick asymmetrical flakes. | On oval or almond shaped flakes | On sub-triangular flakes | On irregular flake-blades | Simple blade points with no retouch | On blades retouched on one edge | Retouched fully on one edge & partially on the other | Retouched on both margins | Obliquely blunted & penknife points | Tanged points | Points on crescentic blades | Hollow based blades | Unclassified & Broken points |
| 10 | 13 | 1 | 14 | 1 | 7 | 7 | 2 | 2 | — | — | — | — | 13 |
| 20 | — | — | — | — | 5 | 22 | 2 | 8 | — | 3 | 3 | — | 107 |
| 30 | 15 | — | 6 | — | 24 | 25 | 10 | 9 | — | 4 | 3 | — | 163 |
| 40 | 28 | — | 9 | 5 | 33 | 162 | 29 | 29 | 6 | 37 | 56 | — | 259 |
| 50 | 2 | — | 5 | 4 | 22 | 65 | 9 | 13 | 3 | 18 | 27 | — | 233 |
| 60 | 5 | — | 2 | 3 | 27 | 108 | 9 | 9 | 3 | 22 | 32 | 1 | 125 |
| 70 | — | — | 2 | — | 3 | 22 | 4 | 1 | 6 | 7 | 4 | 1 | 1 |
| 80 | — | — | — | — | 1 | 4 | 1 | — | 1 | 1 | 1 | — | 9 |
| Total | 63 | 1 | 38 | 13 | 122 | 415 | 66 | 71 | 19 | 92 | 126 | 2 | 910 |

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the intersection of the scars (Helwan Technique).

In the case of blades, the basic types are simple blades and retouched blades. A further division of retouched varieties, is based on the same principles applied in the case of points. The crescentic or curved-back blades or lunates present some difficulty in their sub-division into points and blades. Some of the curved-back crescentic points may be grouped under the crescentic blades and *vice versa*. Each of these sub-classes of points and blades need not be taken as a standardized scheme for classifying microlithic industries. It is an attempt at a thorough evaluation of the various characters of the microlithic industry.

## (iv) TYPOLOGY AND DESCRIPTION OF ILLUSTRATED SPECIMENS

### A. POINTS (Table 7)

(a) Points on thick asymmetrical flakes. Fig. 10.

**No. 1.** Chert. White, patinated, sub-triangular, flake unifacially worked. The sides indented due to deep scars. Faint medial ridge and borer-like point. ADG-1, 40-60 cm.

**No. 2.** Brown chert. A thick blade-flake is retouched on one edge. ADG-1, 50-60 cm.

**No. 3.** Chalcedony. Simple flake, slight retouch on the right edge, awl-like point. ADG-1, 20-25 cm.

**No. 4.** Chalcedony Asmmetrical flake, a little oblique retouch on the right and an incipient tang at the base. ADG-1, 50 cm

(b) Points, on oval or almond-shaped flakes. Fig. 10.

**No. 5.** Milky quartz with yellow crust. A pebble flake of fine symmetrical oval form, no retouch, ADG-1.

**No. 6.** Grey chalcedony. Almond-shaped flake with medial ridge on the front, no retouch. ADG-1, 10 cm.

**No. 7.** Dark brown chert. Almond form, limitedly trimmed on the left edge. ADG-1, 25 cm.

**No. 8.** Yellowish grey chert. A large flake having prominent keel on the upper surface, a dished and plain striking platform with high flaking angle. ADG-1, 30-40 cm.

(c) Points on sub-triangular flakes. Fig. 10

**No. 9.** Brown chalcedony. Thick triangular flake, slightly retouched at the tip on the right edge. ADG-1, 10-20 cm.

**No. 10.** Chalcedony. A triangular flake from a tabular nodule, left side indented, retouched on the right side. ADG-1, 12 cm.

**No. 11.** Chalcedony. A triangular flake, blunted on the left side. ADG-1, 52 cm.

(d) Points on irregular flake-blades. Fig. 10.

**No. 12.** Chalcedony. A simple pointed blade with a notch on the right. ADG-1, 40-60 cm.

**No. 13.** Pink chalcedony. A thick blade from a pebble, retouched on the right side, and partly on the left side. ADG-1, 60 cm.

**No. 14.** Chalcedony. A short sub-triangular blade, with constriction on the left side at the base imparting a shoulder-like feature. Not retouched. ADG-1, 40-50 cm.

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## TABLE–7 MICROLITHS : POINTS

| | ON FLAKES | | | | | | | ON BLADES | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | d | e | f | g | h | i | j | k | l | m |
| Depth in cm. | On thick asymmetrical flakes. | On oval or almond shaped flakes | On sub-triangular flakes | On irregular flake-blades | Simple blade points with no retouch | On blades retouched on one edge | Retouched fully on one edge & partially on the other | Retouched on both margins | Obliquely blunted & penknife points | Tanged points | Points on crescentic blades | Hollow based blades | Unclassified & Broken points |
| 10 | 13 | 1 | 14 | 1 | 7 | 7 | 2 | 2 | — | — | — | — | 13 |
| 20 | — | — | — | — | 5 | 22 | 2 | 8 | — | 3 | 3 | — | 107 |
| 30 | 15 | — | 6 | — | 24 | 25 | 10 | 9 | — | 4 | 3 | — | 163 |
| 40 | 28 | — | 9 | 5 | 33 | 162 | 29 | 29 | 6 | 37 | 56 | — | 259 |
| 50 | 2 | — | 5 | 4 | 22 | 65 | 9 | 13 | 3 | 18 | 27 | — | 233 |
| 60 | 5 | — | 2 | 3 | 27 | 108 | 9 | 9 | 3 | 22 | 32 | 1 | 125 |
| 70 | — | — | 2 | — | 3 | 22 | 4 | 1 | 6 | 7 | 4 | 1 | 1 |
| 80 | — | — | — | — | 1 | 4 | 1 | — | 1 | 1 | 1 | — | 9 |
| Total | 63 | 1 | 38 | 13 | 122 | 415 | 66 | 71 | 19 | 92 | 126 | 2 | 910 |

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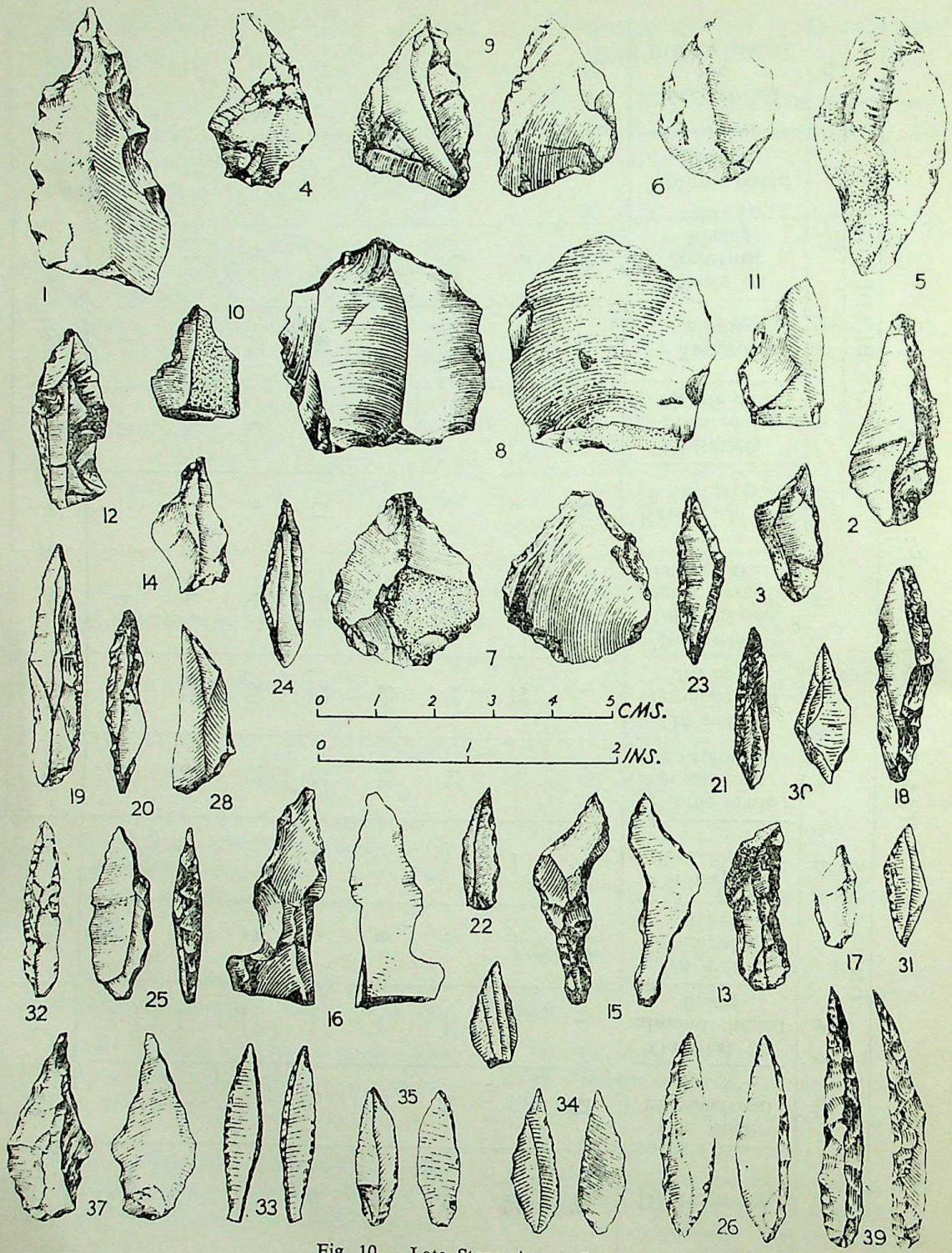


Fig. 10 Late Stone Age : Points

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**No. 15.** Greyish green chert. An asymmetrical blade, retouched on both the edges and having a slender rod-like tang. ADG-12, 30 cm.

**No. 16.** Grey chalcedony. An irregular nodular blade with broad base, no retouch. ADG-12, 30 cm.

(e) Simple blade-points with no retouch. Fig. 10.

**No. 17.** Chalcedony. A simple blade with a pointed tip and no retouch. ADG-1.

(f) Points on blades retouched on one edge. Fig. 10.

**No. 18.** Chalcedony. A thick long blade point steeply retouched on the right margin, and with two notches on the left side, Cross-section triangular formed by medial ridge on the front. ADG-1, 50-60 cm.

**No. 19.** Chalcedony. Similar to **No. 18,** with a step-scar at the base probably to facilitate hafting. ADG-1, 50-60 cm.

**No. 20.** Green jasper. A slender blade backed only on one edge. ADG-1, 35-40 cm.

**No. 21.** Chalcedony. Similar to **No. 20,** but sharply pointed at both ends. ADG-1, 18 cm.

**No. 22.** Chalcedony. A short sub-triangular blade retouched on one edge and having sharp point. The shallow scale like flakes at the base may have facilitated its use as an end-scraper. ADG-1, 36 cm.

**No. 23.** Chalcedony. Sub-triangular retouched on the longest side, sharp point. ADG-1, 45-55 cm.

**No. 24.** Chalcedony. Similar to **No. 23,** but in this case the retouch is on the two adjacent sides and the long side is unworked. ADG-1, 55 cm.

**No. 25.** Grey chalcedony. A broad blade steeply retouched on the right convex side and having an incipient tang at the base. ADG-1.

**No. 26.** Chalcedony. Somewhat similar to **No.** 25 but having symmetrically convex sides and slight nibbling at the base on the other side also. ADG-1, Sf.

**No. 27.** Chalcedony. Similar to **No. 26,** but slightly larger than the former. ADG-1, 30-35 cm. (Fig. 11).

**No. 28.** Chalcedony. A broad blade with oblique retouch on the right side and the broad base. ADG-1, 35 cm.

**No. 29.** Chalcedony. A small symmetrical blade point with retouch on one side only. ADG-1, 20-25 cm.

**No. 30.** Chalcedony. A blade of rhombic outline retouched on the right side and pointed at both ends. ADG-1, 25-30 cm.

**No. 31.** Chalcedony. Same as **No. 30,** but with a more symmetrical outline. ADG-11, 40-45 cm.

(g) Points retouched fully on one edge and partially on the other. Fig. 10.

**No. 32.** Chalcedony. Fully retouched on the left edge, while the right margin is limitedly retouched and also carrying use marks. ADG-1, 40-50 cm.

**No. 33.** Pink-green chalcedony. A blade of very symmetrical form, steeply trimmed on one edge and fine nibbling on half of the other. ADG-1, 50-60 cm.

**No. 34.** Chalcedony. Same as **No. 33** with an incipient tang at the base. ADG-1, 40 cm.

**No. 35.** Chalcedony. Same as **No. 34** with an incipient tang at the base. ADG-1, 40 cm.

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**No. 36.** Chalcedony. Similar to **No. 32** but of a smaller size. ADG-1, 35-40 cm. (Fig. 11).

(h) Points retouched fully on both margins. (Fig. 10).

This group includes some of the finest examples of points. All possess symmetrical forms and well-developed points.

**No. 37.** Chalcedony. A fine example of a point on a flake-blade, steeply retouched along the entire margin and having a well drawn out point. Cross-section trapezoidal. ADG-12, 32 cm.

**No. 38.** Red jasper. Somewhat rhomoidal body, steep trimming along the entire margin, prominent medial ridge on the front and sharp points at both the ends. Cross-section triangular. ADG-1, 1.40 m (Fig. 11).

**No. 39.** Chalcedony. Made on a long narrow blade, and sharp projecting point, steeply trimmed along both margins. Cross-section triangular. ADG-12, 48 cm.

**No. 40.** Chalcedony. On a long blade, retouched on both the edges except towards base. ADG-12, 50 cm. (Fig. 11).

**No. 41.** Chalcedony. Somewhat similar to **No. 39** but broken. ADG-1, 25-30 cm. (Fig. 11).

**No. 42.** Chalcedony. A short rod-like body, broken at the point, retouched on both the edges. ADG-1, 35-40 cm (Fig. 11).

(i) Obliquely blunted or penknife points. (Fig. 11).

In this category are included two similar types of tools. While the main character of both these types is a kind of oblique blunting, those belonging to the **obliquely blunted type** have an intentionally prepared incipient tang or a shoulder. The points of the pen-knife variety are, on the one hand, akin to pen-knife blades, and on the other to triangles.

**No. 43.** Red jasper. This tool is made on a flake having somewhat rhombic outline. Little retouched on the right upto the base, while it is not at all worked on the other margin. A well-developed tang. ADG-1, 50-60 cm.

**No. 44.** Chalcedony. On the front face the chipping from the base downward has produced a well-defined tang which, however, does not carry any retouch. Finely trimmed obliquely near the point. ADG-1, 15 cm.

**No. 45.** Carnelian. Made on a flake, this specimen differs from **No. 43** in as much as it has a finely retouched shoulder, straight, and unworked right side and obliquely blunted edge. A pen-knife point. ADG-1, 30-40 cm.

**No. 46.** Chalcedony. Similar to **No. 45,** but of a smaller size and having steep retouch on the oblique edge. ADG-1, 30-40 cm.

**No. 47.** Chalcedony. Similar to **No. 46.** ADG-1, 30-40 cm.

In the following specimens there is no attempt at developing any shoulder or tang at the base. However, the shorter width of the blade towards the base might have facilitated the hafting of these implements. (Fig. 11).

**No. 48.** Red jasper. Small-sized pen-knife point, perhaps broken at the base. ADG-10, 20-40 cm.

**No. 49.** Chalcedony. Similar to **No. 48.** ADG-1, 45-50 cm.

**No. 50.** Chalcedony. A large pen-knife blade with projecting point, finely retouched on the two adjacent sides. ADG-12, 40 cm.

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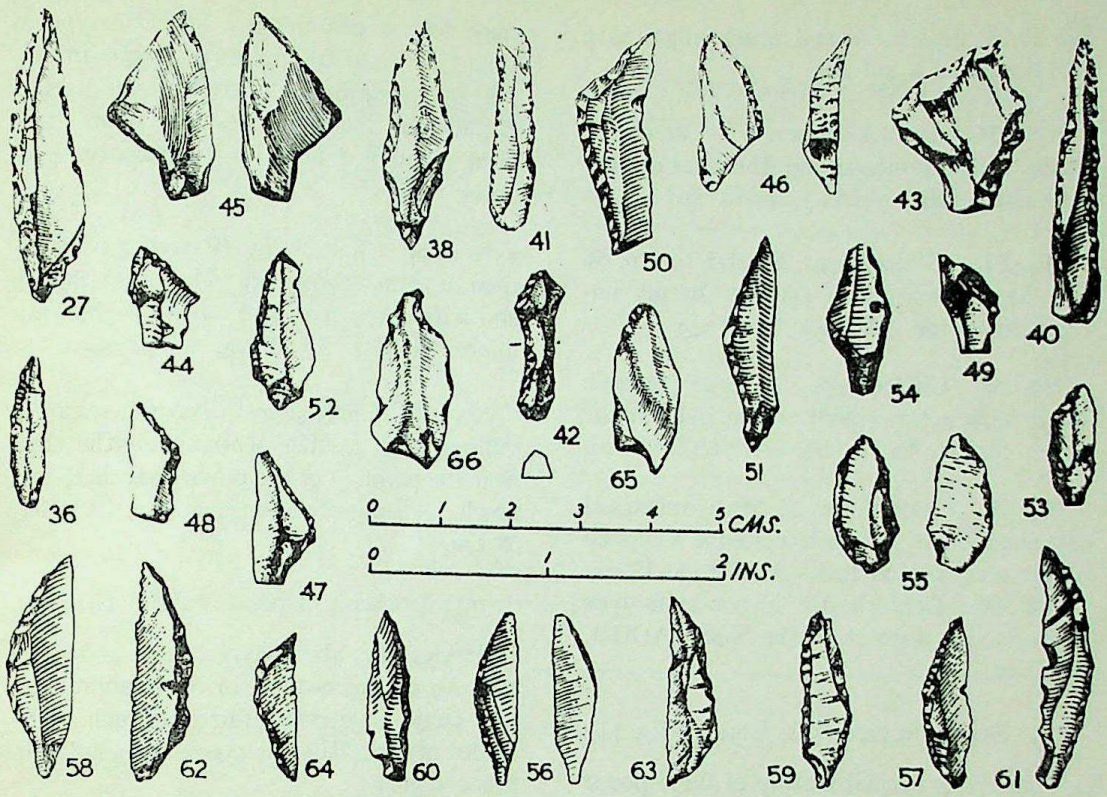


Fig. 11. Late Stone Age : Points

**No. 51.** Chalcedony. Similar to **No. 50** but more slender and longer. The right edge is also slightly retouched at the base. ADG-12, 45 cm.

(j) Tanged points (Fig. 11).

While a few specimens from the earlier groups of points also contained examples of shouldered- or tanged-points the present category includes such specimens in which there is a definite attempt to achieve the tang so as to haft the tool properly. In **Nos. 52, 53** and **54,** a vertical chipping on the front from the base has thinned the end which can then easily be fixed in the arrow-shaft. There is little or no further working at the tang.

**No. 52.** Chalcedony. A thin flake with medial ridge on the front, steeply trimmed at the left margin and the base, where there is a short tang. ADG-1, 30-40 cm.

**No. 53.** Chalcedony. Same as **No. 52** but having a more symmetrical form. ADG-1, 40-50 cm.

**No. 54.** Brown jasper. Same as above, but right edge steeply trimmed. ADG-1, 30-40 cm.

**No. 55.** Chalcedony. Similar to **No. 52** but with fine retouch at the base.

**No. 56** to **59** are points on crescentic blades backed on the curved side and having

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one short, drawn out end which might have functioned as a suitable tang.

**No. 56.** Brown jasper. A crescentic blade with use-marks on the sharper unretouched edge. ADG-1, 40-50 cm.

**No. 57.** Chalcedony. Similar to **No. 56** and having use-marks on the sharper unretouched edge. ADG-1, 40-50 cm.

**No. 58.** Chalcedony. A large crecentic blade with a tiny notch on the right at the base. Similar to **No. 57.** ADG-12, 30 cm.

**No. 59.** Chalcedony. A less symmetrical crescentic blade. The sharper edge is broken and in places retouched. ADG-1, 50-55 cm.

**No. 60.** Grey chert. A pen-knife type blade having a notch at the base. ADG-1, 40-50 cm.

(k) Points on crescentic blades. (Fig. 11).

There is no special feature of these points which are more or less like lunates having prominent pointed ends. This group, therefore, is very similar to crescentic blades or lunates classified under blades. All the illustrated speciments except **No. 62** which is on crystal, are made on chalcedony.

**No. 61.** Shows use-marks and notches. ADG-12.

**No. 62.** Steeply retouched in two directions like **Helwan** retouch. ADG-1, 30-40 cm.

**No. 63.** ADG-1, 40-45 cm.

**No. 64.** ADG-1, 20 cm.

(l) Hollow-based points on blades. (Fig. 11).

Only two specimens of this category have been found in the microliths recovered from ADG-1. Due to their extreme rarity, this may not be considered a separate type as such, but similar specimens form an important group in the microlithic cultures in Britain, and therefore, these two points have been mentioned here for comparative purposes.

**No. 65.** Chalcedony. Roughly symmetrical in form, slightly retouched near the tip and with a concave base having slight trimming. ADG-1, 50-60 cm.

**No. 66.** Chalcedony. Asymmetrical in outline, with a little working on the edge near the point. On the other edge there is a notch. A somewhat concave base. ADG-1, 68 cm.

(m) Unclassified points (not illustrated).

Besides the above types, the collection contains a large number of blade-points and they could have been utilized as such. The blades of miscellaneous type are included in this category.

## B. HORERS AND AWLS (Table 6)

Functionally both the borers and awls are useful for piercing or making holes in wood, bone or hide. Here the distinction between these two types is made only on the basis of the size and sharpness of the working points. Broadly, the specimens worked on thick flakes or nodules have stout and strong points while in the case of those made on thin blades the working point is short, fine and sharp.

### BORERS (Fig. 12)

**No. 1.** Chalcedony. A tabular rod-like nodule is steeply but finely chipped all along the margin and towards the tapering point. Could have also served as a drill. ADG-12, 93 cm.

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**TABLE–8 MICROLITHS : BORERS, AWLS, TRIANGLES, TRAPEZES AND TRANCHETS. FROM ADG-1**

| | BORERS & AWLS | | TRIANGLES | | TRAPEZES | TRANCHETS |
|---|---|---|---|---|---|---|
| Depth cm. | BORERS | AWLS | ISOSCELES | SCALENE | | |
| 10 | 1 | 2 | — | — | — | 4 |
| 20 | 1 | 2 | 6 | 25 | 1 | 4 |
| 30 | 1 | 2 | 10 | 45 | 6 | 4 |
| 40 | — | 5 | 10 | 27 | 2 | 5 |
| 50 | 1 | 5 | 14 | 25 | 2 | 2 |
| 60 | — | 3 | 6 | 13 | 1 | — |
| 70 | — | — | — | 1 | — | — |
| 80 | — | — | 3 | 1 | — | — |
| Total | 4 | 19 | 49 | 137 | 12 | 19 |

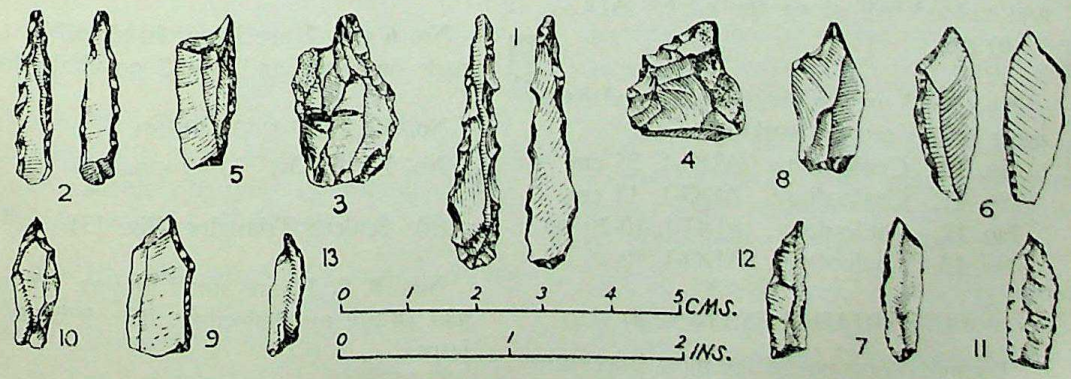


Fig. 12. Late Stone Age : Borers and Awls.

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**No. 2.** Chalcedony, same as **No. 1** but of a smaller size. ADG-12, 48 cm.

**No. 3.** Pale yellow chalcedony. Made on a pebble flake, finely worked along the entire right side. A medial working point with two shoulders. No retouch on the left side of the point. ADG-1, 30 cm.

**No. 4.** Chalcedony. On a sub-triangular flake. ADG-1, 12 cm.

AWLS (Fig. 12)

**No. 5.** Chalcedony. Made on a blade, right edge thick and steeply trimmed. The awl point is achieved by a deep scar—almost a notch — on the left edge near the tip. Single-shouldered and well-pronounced working point. ADG-1, 20 cm.

**No. 6.** Chalcedony. Similar to **No. 5,** but thicker, and the retouched edge is on the left. ADG-1, 35 cm.

**No. 7.** Chalcedony. Similar to **No. 6,** but with thin edges. ADG-10, 35 cm.

**No. 8.** Chalcedony. On a broad blade the awl point is symmetrical — two shouldered, and perhaps obtained by burin-like faceting. Retouched on the left near the tip. ADG-1, 60 cm.

**No. 9.** Green jasper. Similar to **No. 8** but in this case the retouch is on the right and extends all along the edge. ADG-1, 30-40 cm.

**No. 10-13** are on short blades and have more or less medial working points.

**No. 10.** Chalcedony. ADG-1, 35 cm.
**No. 11.** Chalcedony. ADG-1, 18 cm.
**No. 12.** Chalcedony. ADG-1, 10-20 cm.
**No. 13.** Chalcedony. ADG-1, 10-20 cm.

C. TRIANGLES (Table 8)

Triangles form one of the most important groups of geometric microliths. The specimens described here are the best examples of triangles from this site. There are, however, quite a few specimens among the crescents and obliquely blunted points which morphologically are similar to triangles, but, while enlisting the triangles in table No. 8 such specimens are not counted.

Two sub-types may be distinguished, viz: (i) isosceles triangles having more or less two equal adjacent sides, each making approximately angles of 60° or 30° with the third side, (ii) scalene triangles where all three sides are unequal in length. No two angles of the latter variety are equal. The sizes of the triangles in each of these subtypes differ, and the biggest and smallest varieties are illustrated here. All the triangles are finely trimmed on any two adjacent sides. A group of four scalene triangles is also illustrated to show how these tools could have been used as points and barbs.

(i) Isosceles triangles. (Fig. 13).

**Nos. 1-5** are small in size and all are made on chalcedony.

**No. 1.** ADG-1, 40 cm.
**No. 2.** ADG-1, 20-25 cm.
**No. 3.** ADG-1, 30-35 cm.
**No. 4.** ADG-1, 15-20 cm.
**No. 5.** ADG-1, 40 cm.

**No. 6 and 7** are larger in size; **No. 6** is made on chert, and **No. 7** on chalcedony.

**No. 6.** ADG-1, 35-40 cm.
**No. 7.** ADG-1, 35-40 cm.

(ii) Scalene Triangles (Fig. 13)

**Nos. 8, 9, 10** are small in size. **Nos. 8, and 10** are on chalcedony, **No. 9** is on red jasper.

**No. 8.** ADG-1, 20-25 cm.

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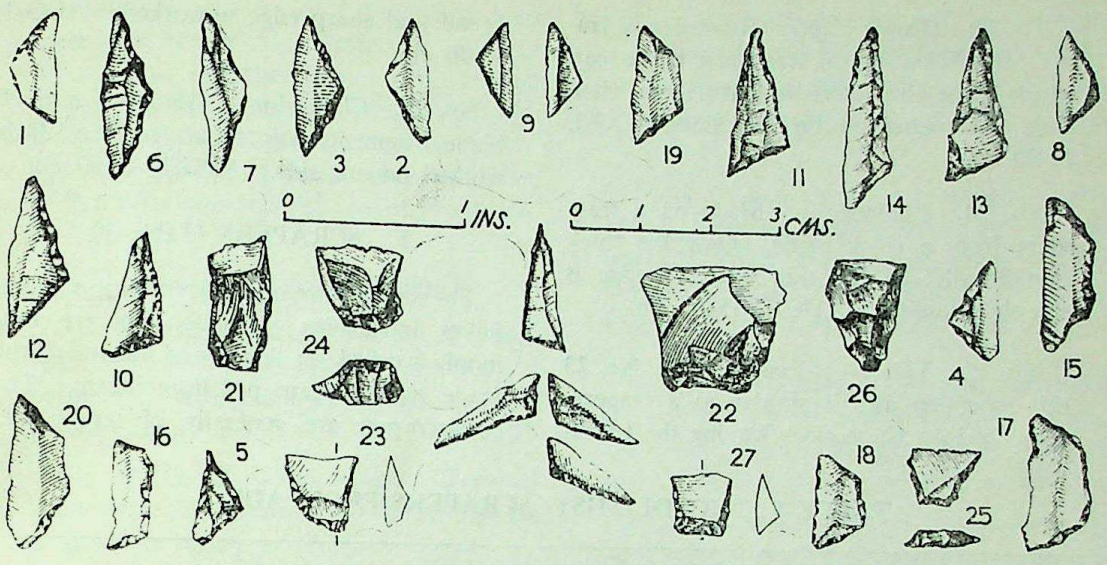


Fig. 13. Late Stone Age : Triangles. Trapezes and Tranchets.

**No. 9.** ADG-1, 20 cm.

**No. 10.** ADG-1, 25-30 cm.

**Nos. 11-14** are larger in size, and except **No. 14** which is on red jasper, the rest are made on chalcedony.

**No. 11.** ADG-1, 15-20 cm.

**No. 12.** ADG-1, 40-45 cm.

**No. 13.** ADG-1, 40-45 cm.

**No. 14.** ADG-1, 50-55 cm.

## D. TRAPEZES (Table 8)

Typical trapezes are rare in this collection. (Fig. 13).

**No. 15.** Chalcedony. A crude-type of trapeze with three sides worked. At the base a shoulder has been formed due to deep flaking. ADG-1, 40-50 cm.

**No. 16.** Chalcedony. A crude form of trapeze, almost a rectangle, three sides worked. ADG-1, 30-40 cm.

**No. 17.** Chalcedony. A fine example with three sides finely worked. ADG-1, 15-20 cm.

**No. 18.** Chalcedony. A tiny specimen, with three sides trimmed, ADG-1, 5 cm.

**No. 19.** Chalcedony. Two transverse sides retouched leaving the parallel sides unworked. ADG-1, 20 cm.

**No. 20.** Chalcedony. Same as **No. 19.** ADG-1, 22 cm.

## E. TRANCHETS (Table 8)

Typologically the tranchets or transverse arrow-heads belong to the same family as the trapezes, and as such are treated next to the trapeze group. (Fig. 13).

**No. 21.** Yellow chalcedony. A sub-rectangular flake-blade having a chisel-like sharp oblique edge. Slightly retouched only on one of the edges. ADG-1, 25-30 cm.

**No. 22.** Chalcedony. A sub-rectangular flake which may have been utilized as a transverse arrow-head. Unretouched. ADG-1, 25-30 cm.

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**No. 23.** Brown jasper. Resembles a trapeze, but has a typical transverse blade-scar, which is the characteristic feature of a tranchet. Retouched on the three sides. ADG-1, 15-20 cm.

**No. 24.** Chalcedony. Made on a fragment from a thick blade. Only the thick side parallel to the thin working edge is steeply trimmed. ADG-1, 15-20 cm.

**No. 25.** Yellow chalcedony. Like **No. 23** this specimen also is similar to a trapeze, retouched on three sides leaving the fourth broad and sharp edge unworked. ADG-1, 15-20 cm.

**No. 26.** Chalcedony. Made on a thick blade fragment, pointed at the base, little worked on one side. ADG-1, 40-50 cm.

## F. SCRAPERS (Table 9)

The scrapers are made on cores or nodules, flakes, and blades. Although they are commonly worked on flakes and blades, those made on cores are not insignificant. The core-scrapers are generally of larger size.

**TABLE–9 MICROLITHS: SCRAPERS FROM ADG-1**

| | On varied cores | | | on fluted cores | | on flakes | | | on bladcs | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth in cms | Core scrapers (chopper type) | Convex core scrapers. | Concave and notched scrapers | On cylindrical cores | On conical type cores | Side scrapers | Concave scrapers | End scrapers | Side scrapers | Concave scrapers | End scrapers |
| 10 | — | — | — | 1 | — | — | — | — | 1 | — | — |
| 20 | 1 | 5 | 1 | 1 | 12 | 1 | 1 | — | 4 | 1 | 2 |
| 30 | 2 | 6 | — | 11 | 35 | 2 | — | 2 | 2 | 2 | 1 |
| 40 | 2 | 6 | — | 11 | 33 | 1 | 2 | — | 3 | — | — |
| 50 | 2 | 2 | 2 | 15 | 42 | 1 | – | — | 3 | 2 | 5 |
| 60 | 1 | 1 | 1 | 15 | 39 | 1 | 1 | — | 4 | — | 1 |
| 70 | — | 1 | — | 4 | 4 | — | — | — | — | — | — |
| 80 | — | 1 | — | — | 1 | 3 | — | — | — | — | — |
| Total | 8 | 22 | 4 | 58 | 166 | 9+2 (SF) | 4 | 2 | 17 | 5 | 9 |

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A substantial number of fluted blade cores have been further steeply retouched to serve as scrapers and these have been treated along with the group of cores. The core-scrapers mentioned below are made on pebbles, split-pebbles or tabular rocks and none of them has been utilized for the production of blades.

I. Core-scrapers (chopper-type) (Fig. 14)

**No. 1.** Quartzite. Made on a small split-pebble bifacially flaked along half the periphery resulting in a wavy edge. A small pebble-chopper. ADG-1, 25-35 cm (Fig. 15).

**No. 2.** Quartz. On a small discoidal split-pebble bilaterally trimmed producing a short uneven edge. ADG-1, 25 cm.

**No. 3.** Pink agate. A small split-pebble worked in the same manner as in **No. 2** but practically all along the margin. A discoidal core-chopper. ADG--, 40 cm.

II. Core-scrapers (convex edge). (Fig. 14)

**No. 4.** Chert. A tabular block of rectangular habit is finely trimmed along the three sides leaving the fourth cortex-covered short side for a suitable hand rest. The working edge is thin. ADG-1, 35-40 cm.

**No. 5.** Chalcedony. A tabular blade-core is finely and steeply retouched resulting in a convex transverse scraping edge. ADG-1, 40 cm.

**No. 6.** Chert. Two large flakes are removed from one side of a thin ovoid pebble producing deep scar-beds. Along the edge of one of these scars the specimen is very finely retouched to form a short convex scraper-edge. ADG-1, 120 cm.

III. Concave and notched core-scrapers. (Fig. 14).

**No. 7.** Grey cherty quartzite. A thin tabular fragment of trapezoidal outline is finely retouched on the left and bottom. The trimming has further produced notches on these sides. Notched-side-scraper, but could have also served as a borer. ADG-1, 40-45 cm.

**No. 8.** Black chert. A rectangular tabular fragment has been trimmed on the two opposite edges resulting in deep notches which are further finely retouched. Concave scraper on core. ADG-1, 12-25 cm.

**No. 9.** Chalcedony. A nodular thick flake is steeply but finely trimmed on the two sides towards the pointed end. One of these sides is concave. ADG-1, 30 cm.

**No. 10.** Brown chert. A tabular fragment is beautifully and steeply retouched on the long side, and the other, more or less parallel, side has two deep notches. Notched side-scraper. ADG-1, 50 cm.

IV. Side scrapers on flakes. (Fig. 14).

**No. 11.** Chalcedony. A trapezoidal flake from a small brown patinated pebble is beautifully retouched in one direction on the longer of the parallel sides. ADG-1, 52 cm.

**No. 12.** Dark grey chert. A sub-rectangular flake is finely trimmed on one long and adjacent short side, while the other two sides are left unworked. ADG-1, 40 cm.

**No. 13.** Yellowish-brown chert. A leaf-shaped flake is very finely trimmed on the right edge from both the sides, while on the left edge the flaking is only in one direction and is limited to the point. A very beautiful specimen which can be classed with the points. ADG-12, 32 cm.

V. Concave scrapers on flakes. (Figs. 14 and 15).

All the three specimens illustrated here are made on thick flakes of red or brown jaspery-chert.

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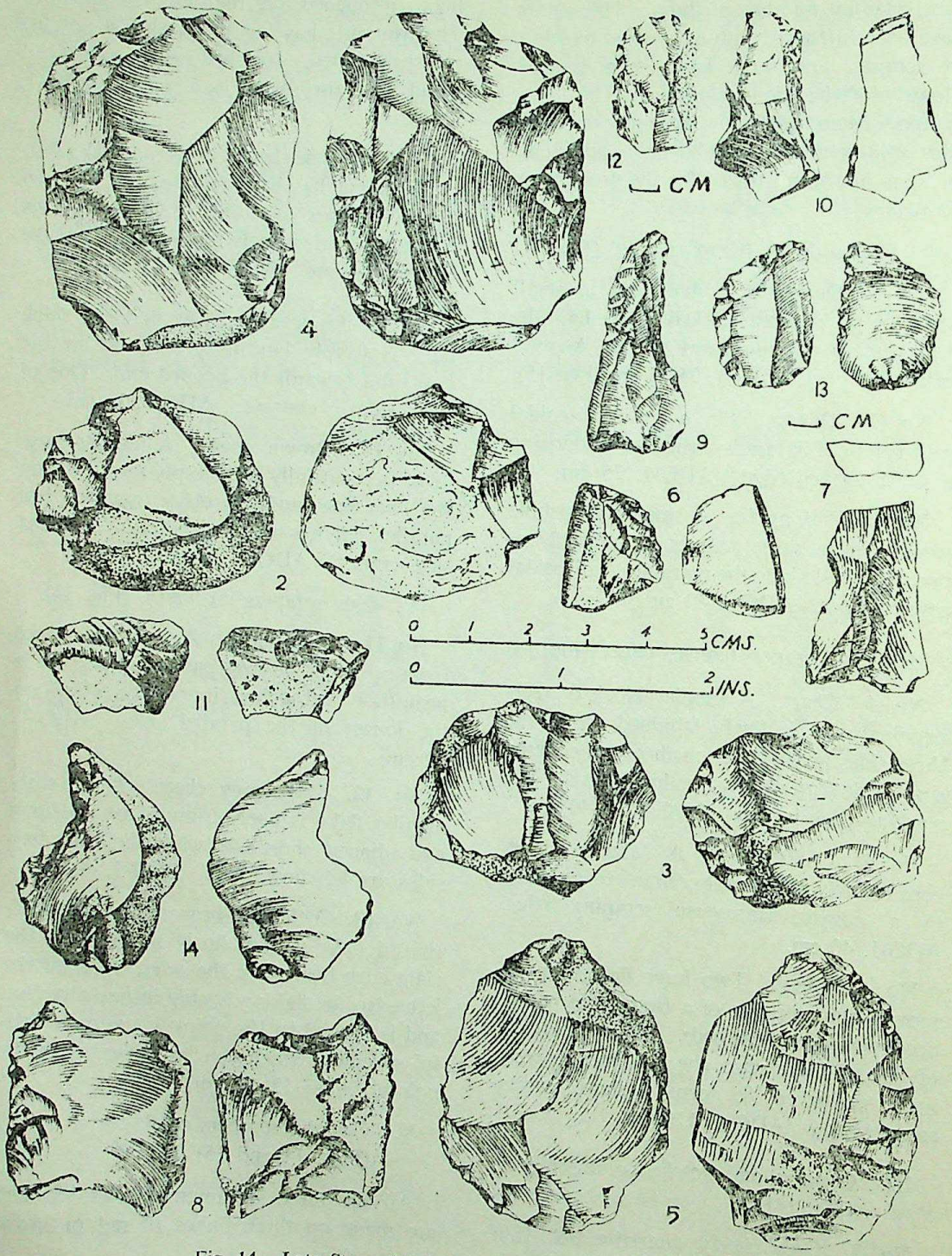


Fig. 14. Late Stone Age : Core-scrapers and Flake-scrapers.

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**No. 14.** On a small side-flake, the deep concave edge of primary flaking is not retouched but the tool could have been used as a concave-scraper. ADG-1, 52 cm.

**No. 15.** On an almond-shaped flake of symmetrical outline, the left edge converging towards the tip is concave and is secondarily retouched. The tool has the outline of a point. ADG-1, 15-25 cm.

**No. 16.** This is made on a blade-flake The right edge is concave and retouched while the unworked and comparatively thick left side forms a back for the concave scraper. ADG-1, 50 cm.

VI. End-scrapers on flakes. (Fig. 15).

Of the four illustrated specimens **No. 17** is made on a large, thick flake from a grey-brown chert pebble, while **Nos. 18-20** are on chalcedony and are of microlithic size. The retouching on the edge is only in one direction.

**No. 17.** A sub-triangular flake with a finely flaked front and retouched convex flaring scraper-edge. A fan-shaped, convex end-scraper. ADG-1, 20-25 cm.

**No. 18.** A sub-triangular flake possibly from a fluted core with the third short side steeply retouched into a scraper-edge. The undersurface is a plain flake surface. ADG-12, 32 cm.

**No. 19.** A sub-triangular small flake has been steeply worked on the convex side producing a fine scraper-edge. ADG-1, 30 cm.

**No. 20.** Somewhat similar to **No. 18** but with a convex flaring scraper-edge. ADG-12, 93 cm.

VII. Side-scrapers on blades with straight or convex edge. (Fig. 15).

These tools are made on brown jasper **(Nos. 21, 22)**, chalcedony **(No. 26)**, grey chert **(No. 25)** and yellowish-green chert **(Nos. 23, 24)** and the blades used are thick and somewhat crude. These are more akin to blade-flakes.

**No. 21.** Retouched on the left edge by one directional flaking, the underside is plain. ADG-1, 40 cm.

**No. 22.** A fine specimen of a side-scraper on a blade. The right edge is trimmed rather steeply. Some retouching is also apparent at the bulbar end. ADG-1, 35-40 cm.

**No. 23.** A short broad blade slightly retouched on the concave left edge. ADG-1, 35-40 cm.

**No. 24.** A rather thick flake-blade trimmed on two long sides. ADG-12, 20 cm.

**No. 25.** A crescentic blade retouched on the right convex edge. Here the purpose of retouching is not backing as in the case of lunates, but the intention is to produce a scraper-edge. ADG-1, 10-15 cm.

**No. 26.** Similar to **No. 25** but in this the trimming is on the left convex edge. ADG-1, 15-25 cm.

VIII. Concave scrapers on blades. (Fig. 15).

This is comparatively a rare type of blade scraper.

**No. 27.** Brown jasper. A blade having the left side thick and unworked, forms a back for the right concave and retouched edge. ADG-1, 5-15 cm.

IX. End-scrapers on blades. (Fig. 15).

All the three illustrated specimens show the finest type of trimming at the end of the blades, the resulting scraper edge being slightly convex. Thumb-nail scrapers are also included in this sub-type.

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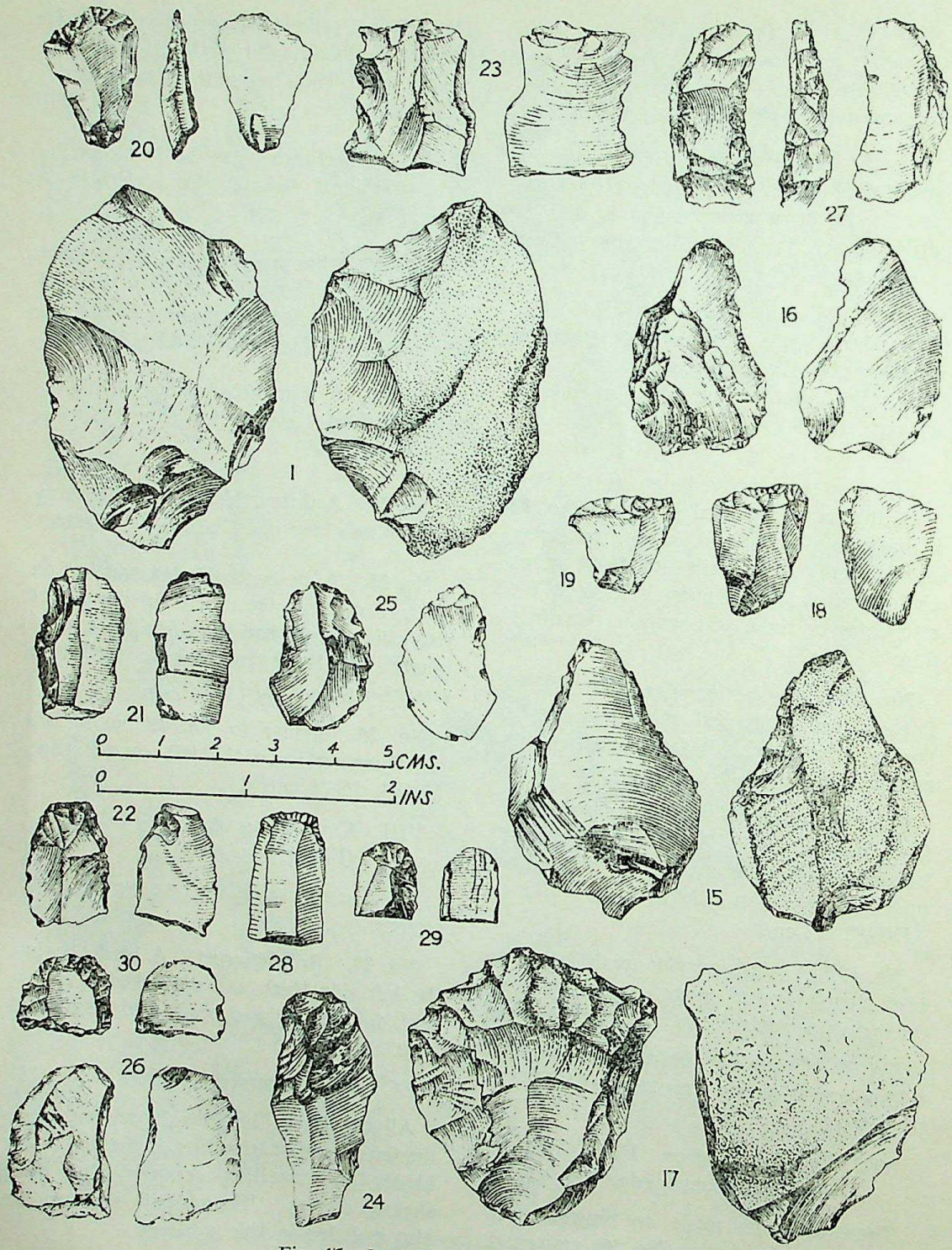


Fig. 15. Late Stone Age : Flake-scrapers.

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**No. 28.** Yellowish-brown chert blade, minutely retouched at the top to produce a thin scraper-edge. The sides have not been worked. ADG-12, 30-35 cm.

**No. 29.** Chalcedony. A short blade has been beautifully trimmed at the end resulting in a convex edge. Perhaps originally made on a longer blade but later shaped at the base. ADG-1, 45-50 cm.

**No. 30.** Chalcedony. A fine example of a thumb-nail scraper. The semi-circular edge is steeply but finely worked by single directional flaking. ADG-1, 52 cm.

G. BURINS (Table 10) (Fig. 16).

Burins form an important tool-type in the microlithic industries of Adamgarh. This tool is characteristic of the Upper Palaeolithic but is equally common in the Mesolithic industries. These burins are made on nodules, thick flakes, and blades, and there are examples of micro-burins, a variety special to the Mesolithic.

**No. 1.** Green banded chert. On a small thick sub-triangular flake. The working end is obtained by removing one oblique spall against a deep scar of the flake taken from the front. ADG-1, 20 cm.

**No. 2.** Brownish chert. On a small thick flake, the working end is achieved by detaching one oblique spall against another oblique spall. ADG-8.

**No. 3.** Grey-brown chalcedony. On a large thick, sub-triangular flake. The burin edge is produced by the removal of two oblique spalls opposed to another set of similar spalls. ADG-1, 40 cm.

**No. 4.** Grey-brown chert. Made on a sub-triangular nodule, similar to **No. 3**, but of a cruder type. ADG-1, 40 cm.

**No. 5.** Yellow-grey chert. On a large, thick ovoid flake. This is a very fine example of burin-cum-side scraper. The burin edge is formed by two large and two small oblique scars, against a set of two oblique scars truncated by a stepped scar. Steeply trimmed and delicately retouched along three-fourths of the margin to serve as a side-scraper. ADG-16, 32 cm.

**No. 6.** Chert. On an ovoid blade-core. The working end is formed by taking one oblique spall against another similar spall. Steeply retouched on the left margin producing a scraper edge. Burin-cum-side-scraper. ADG-1, 70 cm.

**No. 7.** Similar to **No. 1.** Made on chalcedony flake. Sf.

**No. 8.** Brownish chalcedony. Made on a small ovoid flake. This is an example of a double burin. The burin edges at the two ends are formed by the removal of two oblique spalls at each end on the left side against one oblique spall at each end on the right edge. ADG-1, 70 cm.

**No. 9.** Green chert. On a blade, the burin edge is at the bulbar end. The working end is achieved by removing a single spall opposed each other. There is also a short vertical scar on the left side at the base. ADG-1, 70 cm.

**No. 10.** Chalcedony. On a blade, the edge formed by the inntersection of the two oblique scars on each side at the bulbar-end of the blade. An awl-like point has been formed instead of a burin-edge. The blade is blunted on the right by fine retouch. ADG-1, 25-35 cm.

**No. 11.** Chalcedony. On a thick blade blunted by steep retouch on the left margin, like **No. 6.** The burin edge is obtained by taking two vertical spalls on the right and one oblique flake on the left. It is a scraper-cum-burin. ADG-1, 25-30 cm.

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**No. 12.** Grey chalcedony. The burin edge is formed by removing an oblique spall on the right and a retouched concave portion of the notched blade. The bulb of percussion is at the base. A micro-burin. ADG-1, 35 cm.

**No. 13.** Chalcedony. On a blade snapped at the base. The burin edge is formed by a tiny oblique scar on the left and retouched concave surface on the right. Probably an awl-cum-micro-burin. Sf.

## H. BLADES (Table 10)

As has been stated earlier (p. 45) blades of all varieties detailed hereunder form one of the two major groups in the microlithic assemblage, the other important group being that of the points. From the description of the different tool-types dealt with above it will be evident that in the microlithic industries the majority of the tools are worked on blades. The blades themselves — with or without further retouch — could be utilized as tools for cutting, spliting, or scraping purposes. Considering this usage of blades they have been treated separately. It is already stated (p. 46) that while dealing with the curved back blades, lunates and crescentic points, there are likely to be some overlaps as such implements can be put to a variety of uses as blades or as points.

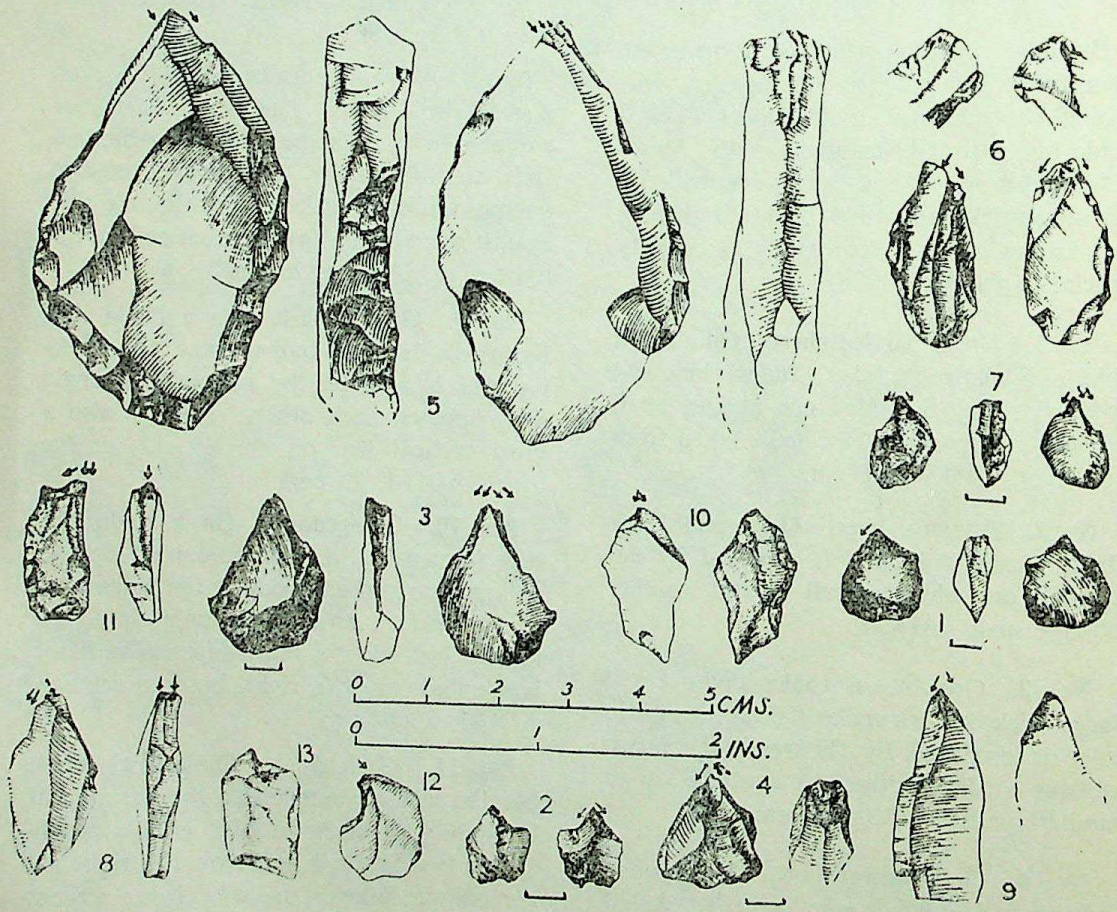


Fig. 16. Late Stone Age : Burins

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## TABLE–10 MICROLITHS : BURINS AND BLADES ADG-1

| Depth in cms | Burins | Blades blunted on one straight edge | Penknife blades | Crescentic blades ( Lunates ) | Simple unretouched blades | Notched blades | Serrated and blades with crested ridges | Unclassified blades |
|---|---|---|---|---|---|---|---|---|
| 10 | — | 7 | 10 | 6 | 17 | 1 | — | 48 |
| 20 | 1 | 52 | 10 | 20 | 85 | 1 | 1 | 155 |
| 30 | 3 | 45 | 68 | 13 | 263 | 1 | — | 765 |
| 40 | 2 | 89 | 234 | 67 | 315 | 1 | — | 524 |
| 50 | — | 74 | 134 | 28 | 281 | 1 | 1 | 807 |
| 60 | — | 44 | 77 | 26 | 113 | — | — | 813 |
| 70 | 3 | 4 | 12 | 8 | 73 | — | — | 97 |
| 80 | — | — | — | 8 | 16 | — | — | — |
| Total | 9 | 315 | 545 | 176 | 1163 | 5 | 2 | 3209 |

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In this group are the finest examples of parallel-sided, unretouched blades, as well as those with a crested-ridge, which are the characteristic features of the Chalcolithic blade industries. The occurrence of such blades in trench ADG-12, is also significant, for only in this trench was obtained a large quantity of pottery and other antiquities, some of the pottery types even suggesting Chalcolithic affinities. It, thus, appears that there are indications of the existence of two types of microlithic traditions at Adamgarh.

I. Blades blunted on one straight edge. (Fig. 17).

**No. 1.** Pink-green chalcedony. A large parallel-sided blade, thick on the right edge, which is blunted by retouching. The other sharper edge shows use marks. ADG-12, 25 cm.

**No. 2.** Chalcedony. Same as above. ADG-12, 48 cm.

**No. 3.** Pink chert. A short but broad parallel-sided blade. One edge and the tip are retouched. ADG-12, 20 cm.

**No. 4.** Chalcedony. Similar to **No. 2,** but in profile, appears curved. ADG-12, 20 cm.

II. Pen-knife blades. (Fig. 17).

Akin to the blades described in (I) above are the pen-knife blades. Like the previous group, these blades are blunted or plain. But they are thick on one edge, and in addition, the blunted edge curves towards the tip like a pen-knife blade. These blades also have a shoulder at the base to facilitate their hafting, although they could have as well been used without hafting.

**No. 5.** Greenish chert. A long blade broken at the tip, blunted on one edge, and having an incipient tang at the base. ADG-12.

**No. 6.** Chalcedony. Similar to **No. 5.** The edge is not blunted, less thick and as such can serve as a suitable 'back'. ADG-12.

**No. 7.** Carnelian. A fine example of a pen-knife blade perhaps snapped at the base, steeply blunted on one edge and the other sharp edge shows use marks. ADG-1.

**No. 8.** Brown jasper. A small pen-knife blade. ADG-1, 15-20 cm.

III. Crescentic blades (lunates) (Fig. 17).

All the blades show indentations on the sharp edge perhaps due to use.

**No. 9.** Opal. A fine example of a symmetrical lunate. The upper surface has a mid-rib. The underside is plain. Steeply blunted on the curved edge by two directional flaking (**Helwan** retouch). In this specimen the breadth is less than half the length. ADG-1, 40-45 cm.

**No. 10.** Chalcedony. A large crescent of symmetrical outline, similar to **No. 9,** ADG-12.

**No. 11.** Dark grey chert. Same as **No. 10** ADG-1, 45-50 cm.

**No. 12.** Chalcedony. Same as **No. 11,** but of a smaller size. ADG-1, 18 cm.

**No. 13.** Chalcedony. In this specimen the length is double the breadth and in this respect it differs from the above blades. It has a true crescentic form. ADG-1, 30-35 cm.

**No. 14.** Chalcedony. Similar to **No. 12,** but in this specimen the curved edge is flaring (eared) at the ends. ADG-1, 25-30 cm.

**No. 15.** Chalcedony. Similar to **No. 13,** but unlike all the lunates described above, this specimen has no ridge on either surface. ADG-1, 55 cm.

IV. Simple unretouched blades. (Fig. 17).

**No. 16.** Pink chert. Parallel-sided unretouched blade, snapped at the end opposite to the bulbar side. ADG-12.

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**No. 18.** Carnelian. Similar to above, but snapped at both ends. ADG-12.

**No. 19.** Chalcedony. A thick, unretouched blade. ADG-12.

V. Notched blades. (Fig. 17).

**No. 20.** Chalcedony. A flake-blade notched on the right edge. The bulb is at the base on the opposite side. No retouch at the notched portion or elsewhere. ADG-1, 20 cm.

**No. 21.** Chalcedony. Similar to **No. 20,** but notch is shallow. ADG-1, 50-55 cm.

**No. 22.** Grey chalcedony. A short parallel-sided blade notched on the left, the bulb is at the top on the other side. ADG-1, 10-15 cm.

**No. 23.** Brown chalcedony. A broad blade notched on the right and snapped at the distal end. ADG-1, 35-40 cm.

**No. 24.** Brown chert. A blade with two notches, one on each side. ADG-1, 25-30 cm.

VI. Serrated blades. (Fig. 17).

Blades with fine saw-like serrations are not met with. The two examples illustrated are of a crude variety.

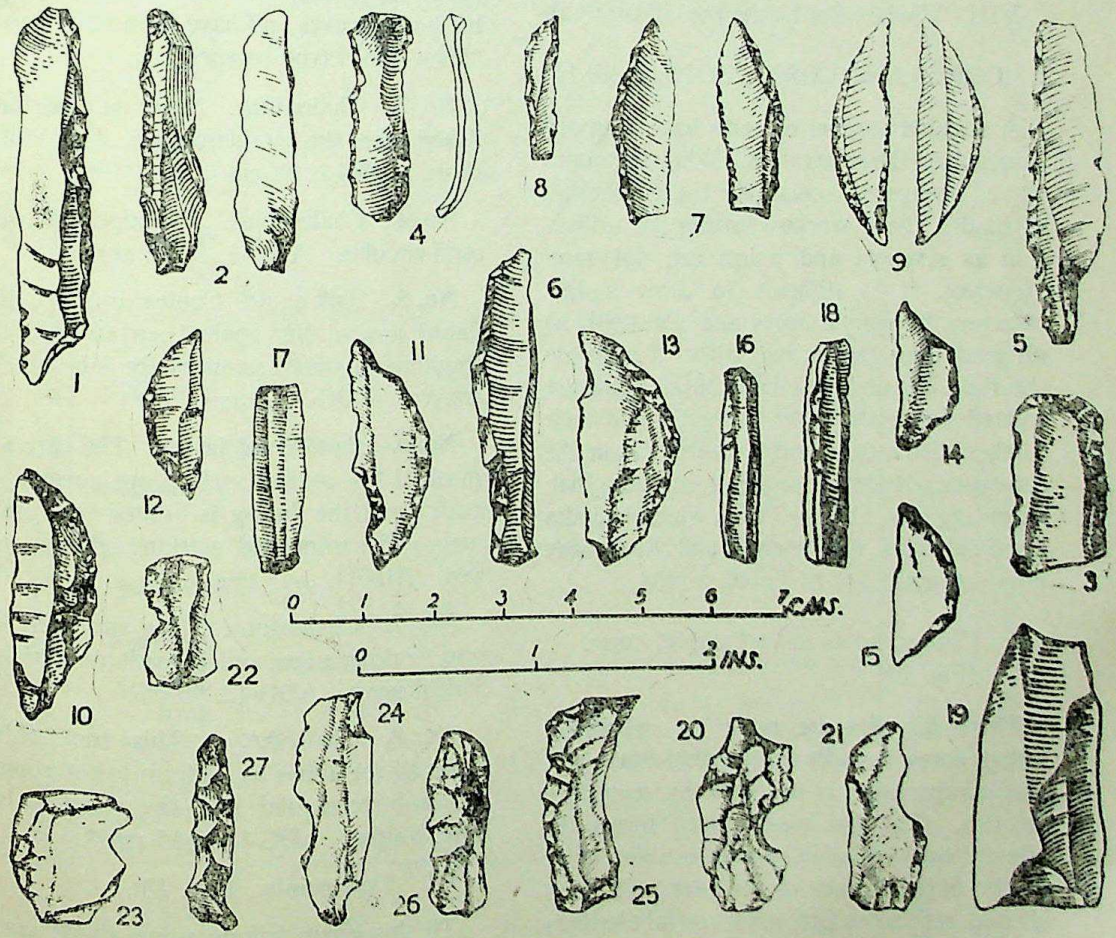


Fig. 17. Late Stone Age : Blades.

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**No. 25.** Chalcedony. An asymmetrical flake-blade having deep and close flaking on the left edge producing a short serrated edge. ADG-1, 48 cm.

**No. 26.** Chalcedony. A short blade, same as **No. 25.** ADG-1, 5-15 cm.

VII. Blades with crested ridge. (Fig. 17).

This is the only example of a blade having a crested ridge on the front and plain under-surface, commonly observed in the Chalcolithic blade industries.

**No. 27.** Chalcedony. ADG-12.

VIII. Unclassified blades (not illustrated).

I. CORES AND CORE-TOOLS (Table 11)

A sizeable number of cores have been obtained from the excavation. While the majority of them were meant for the production of blades, those worked further for utilization as scrapers and points are not rare. However, it is difficult to draw a line between the simple cores and core-tools as all gradations can be met with. To obviate the rigid classification both these types are treated under the same category, and their further distinctions are brought out in the sub-types. It should be mentioned here that, excepting the sub-type (VII), which includes discoidal cores, all the cores and those made into core-tools are of fluted variety.

I. Core-scrapers on cylindrical cores. (Fig. 18).

These scrapers are made on cylindrical fluted cores, usually single-platform cores. The scraper-edge is achieved by secondary retouch. The flat base, which forms the convex working edge, makes a right angle to the fluted surface of the core. The illustrated specimens are made on chalcedony nodules.

**No. 1.** Made on a partially fluted blade-core, the scraper-edge is short and convex. ADG-1, 10-15 cm.

**No. 2.** Made on a core of broad striking platform and other somewhat tapering end. ADG-1, 15-25 cm.

II. Core-scrapers on conical type cores. (Fig. 18).

These specimens are made on fluted conical or sub-conical cores. The cores lie flat on a broad sub-circular base and the fluted surface makes an acute angle (30° to 60°) with the scraper edge, which runs along the base. In profile, these core-scrapers resemble horse-hooves and have been described as "horse-hoof" type scrapers.

**No. 3.** Chalcedony. Made on a partially flaked core, the scraper-edge is straight and short. ADG-1, 68 cm.

**No. 4.** Chalcedony. The edge is broadly semi-circular. ADG-1, 10-15 cm.

**No. 5.** Pink agate. Conical in form, fully flaked around the conical surface and the resulting retouched scraper edge is broad and convex. ADG-1, 30 cm.

**No. 6.** Banded red jasper. The base and most of the conical surface are covered by cortex and the fluting is limited to a small area. The retouched working edge is convex. ADG-1, 5-15 cm.

**No. 7.** Chalcedony. This specimen has two working edges and is made on a rhomboidal piece. ADG-12, 90 cm.

**No. 8.** Chalcedony. This tool differs from all the above as its form is not conical but sub-rectangular and the scraper-edges are straight. ADG-1, 10-15 cm.

III. Core-points. (Fig. 18).

To this group belong a few fluted cores, which have a slightly rhombic outline, a dis-

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TABLE–11 MICROLITHS : CORES AND CORE-TOOLS FROM ADG-1

| | Scrapers onvarious cores. | | | Scrapers on fluted cores | | | Cores | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth in cms | Core Scrapers (Chopper type) | Convex core scrapers | Concave and notched | Cylindrical | Conical type | Core points | Cylindrical Cores | Conical Cores | Multiplat-form Cores | Discoidal Cores | Blade-cores Tabular nodules | Blade cores (chisel ends) | Misc. Cores |
| 10 | — | — | — | 1 | — | — | 2 | 1 | — | — | — | — | — |
| 20 | 1 | 5 | 1 | 1 | 12 | 1 | 8 | 5 | 7 | 1 | 5 | 2 | 39 |
| 30 | 2 | 6 | — | 11 | 35 | 2 | 9 | 20 | 2 | 4 | 5 | 5 | 73 |
| 40 | 2 | 6 | — | 11 | 33 | — | 7 | 4 | 8 | — | 7 | — | 38 |
| 50 | 2 | 2 | 2 | 15 | 42 | 2 | 9 | 7 | 5 | 5 | 4 | — | 17 |
| 60 | 1 | 1 | 1 | 15 | 39 | — | 2 | 4 | 10 | 2 | — | — | 29 |
| 70 | — | 1 | — | 4 | 4 | — | — | — | — | — | — | — | — |
| 80 | — | 1 | — | — | 1 | — | — | — | — | — | — | — | — |
| Total | 8 | 22 | 4 | 58 | 166 | 5 | 37 | 41 | 32 | 12 | 21 | 7 | 193 |

*Note* : Core Scrapers are tabulated under 'Scrapers' (Table 9) and also under 'Core tools'.

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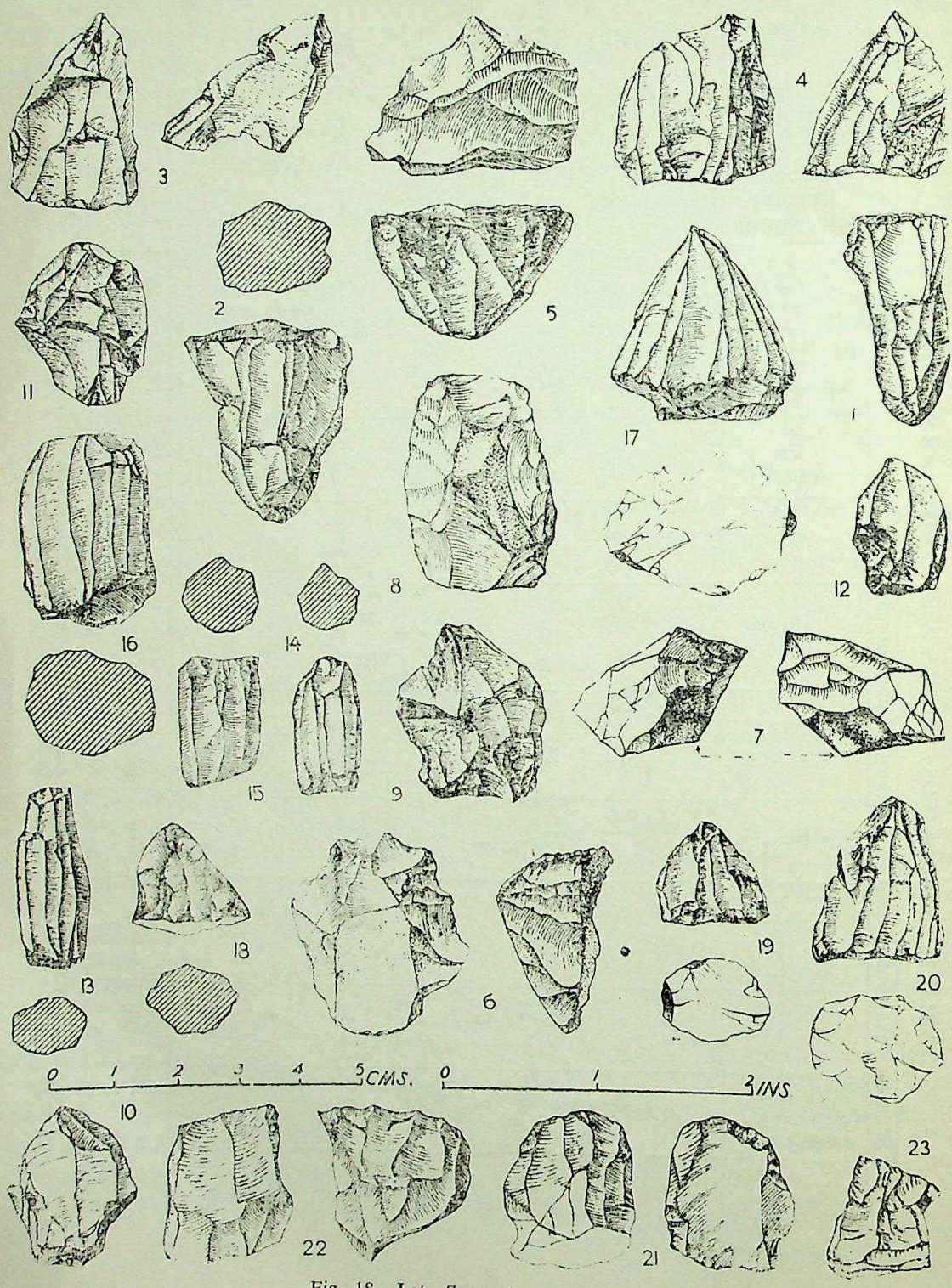


Fig. 18. Late Stone Age : Cores.

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tinct stout point, and what is more they appear to have an incipient tang. To what use these tools were put is difficult to comprehend, because they are too thick to have been properly hafted as arrow points. Excepting **No. 9** none could have served even as a borer.

**No. 9.** Chalcedony. A core fragment with tapering point and stepped scar at the left to form a shoulder. ADG-1, 45 cm.

**No. 10.** Chalcedony. This is the finest symmetrical specimen worked on a pebble. The front carries blade-scars while the underside is covered by pebble cortex. An incipient tang is at the base. ADG-1, 15-25 cm.

**No. 11.** Chalcedony. Similar to **No. 10,** but slightly broader at the tip. The tang is obtained by vertical flaking down from the base and the scars form deep steps. ADG-1, 10-15 cm.

**No. 12.** Chalcedony. Similar to **No. 11,** but with a shoulder at the base. ADG-1, 30 cm.

IV. Cylindrical cores. (Fig. 18).

These are generally the single platform prismatic cores with a more or less cylindrical body (flat base and truncated top). The cross-section in the middle of the length is almost circular.

**No. 13.** Brown chert. Slender body, blade-scars all around. ADG-1, 45 cm.

**No. 14.** Pink chert. Shorter in size than **No. 13.** Blades have been removed around three-fourths of the circumference leaving the rest cortex covered portion unworked. ADG-1, 35-40 cm.

**No. 15.** Chalcedony. Thicker than the above two specimens. Truncated ends. ADG-1, 40 cm.

**No. 16.** Pale pink chalcedony. A thick core almost completely flaked around. ADG-1, 20-45 cm.

V. Conical cores. (Fig. 18).

These cores have a sub-circular flat base (striking platform) and distinctly conical top.

**No. 17.** Brown jasper. Fine conical shape, the base is made flat by flaking. ADG-1, 15-25 cm.

**No. 18.** Dark chalcedony. Small in size. ADG-1, 50 cm.

**No. 19.** Pink chalcedony. Similar to **No. 17,** but smaller in size. ADG-1, 45 cm.

**No. 20.** Banded red chalcedony. The blade scars are slanting. Worked only around half the periphery. ADG-1, 15-25 cm.

VI. Multi-platform cores. (Fig. 18).

A few of the fluted cores with multiple striking platforms are illustrated here. In some specimens the blade scars intersect each other.

**No. 21.** Chalcedony. Sub-rectangular in form showing scars of blades taken from the striking platforms. On the underside is a deep scar of a flake removed from the core. ADG-1, 20 cm.

**No. 22.** Chert. Sub-rectangular form showing intersecting blade-scars of multi-directional flaking. ADG-1.

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**No. 23.** Chalcedony. A small blade core from which blades have been obtained from different directions. ADG-1, 45-50 cm.

**No. 24.** Chalcedony. Somewhat similar to **No. 23.** (Fig. 19).

VII. Discoidal cores. (Fig. 19).

Such cores are rare in Adamgarh microlithic collection. . They have a discoidal form and the scars indicate removal of flakes of small dimensions, some alternately, and only rarely along the entire margin.

**No. 25.** Yellow-brown chert. ADG-1, 35-40 cm.

**No. 26.** Red jasper. ADG-1, 10-20 cm.

VIII. Blade-cores on tabular nodules. (Fig. 19).

These are the usual microlithic blade cores, and as such do not require classification as a separate sub-type. But due to their frequent occurrence on tabular pieces, which are rarely fully flaked, such cores have been treated under a separate group.

**No. 27.** Agate. A rectangular tabular piece having parallel blade-scars only on the front, while the undersurface is covered by cortex. ADG-1, 20-25 cm.

**No. 28.** White chert, covered by a thick brown crust. A tabular piece partially flaked along the sides. ADG-1, 42 cm.

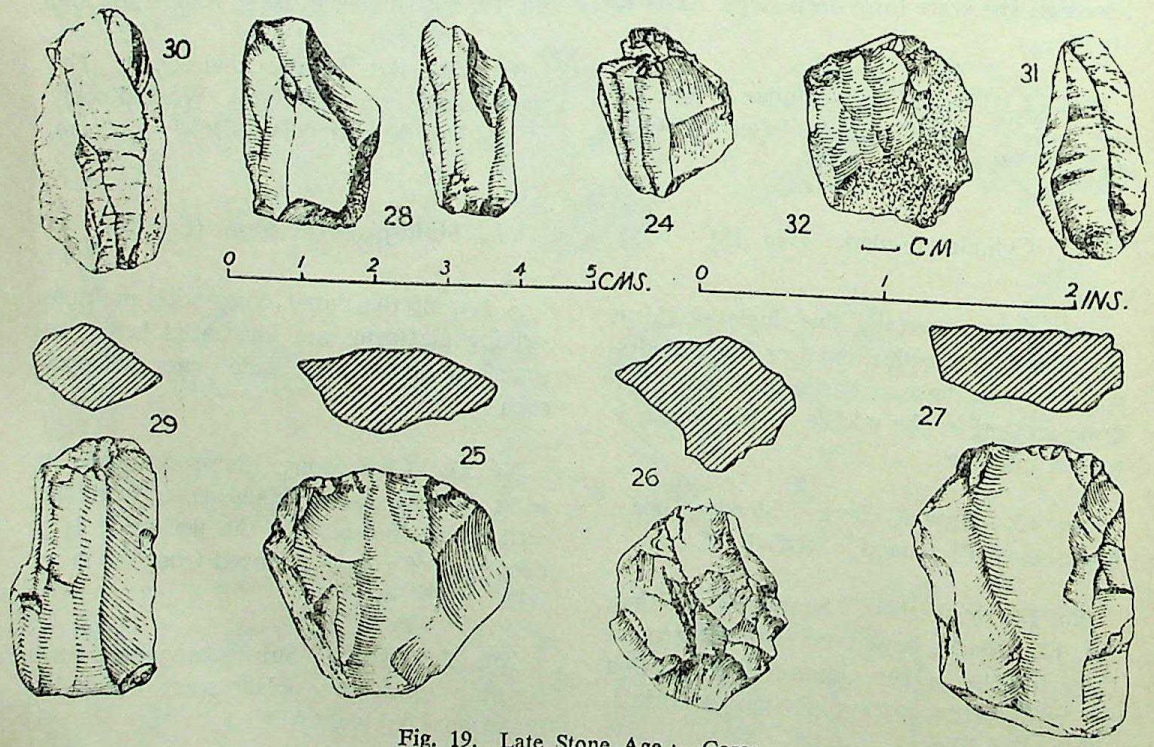


Fig. 19. Late Stone Age : Cores

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**No. 29.** Yellowish-green chert. Similar to **No. 28.** ADG-1, 48 cm.

IX. Blade-cores with chisel ends. (Fig. 19).

In this type of fluted core the flaking has produced a thin chisel-like edge at one end, and such specimens might have been used as chisels or wedges.

**No. 30.** ADG-1, 15-20 cm.

**No. 31.** ADG-1, 25-30 cm.

X. Miscellaneous cores. (Fig. 19).

A large number of partially flaked cores on nodules, pebbles, and fragments of siliceous minerals of chert, chalcedony etc. are included in this category.

**No. 32.** A large pebble of brown chert partially flaked. ADG-12, 20 cm.

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# 4. DISCUSSION

### (i) Stratigraphy

The excavation on Adamgarh hill has not revealed the presence of any tool-bearing conglomerate-bed either above the laterite or in any other stratigraphic context. As such it is evident that the implementiferous conglomerate of De Terras[1] **Lower Group,** exposed in the Narmada section at Hoshangabad, has no parallel deposit on Adamgarh hill. The Early Stone Age artefacts found on the surface, enclosed within the blocks of rocks on the hill, however, typologically compare well with those present in the basal gravel **(Lower Group)** of the Narmada section. They clearly show Acheulian — more specifically early Acheulian characteristics.

The red lateritic clay and the overlying debris encountered in the excavation, probably represents the horizon of the red concretionary clay of the **Lower Group.** The red lateritic clay is not calcified evidently due to the absence of any calcareous material on the hill. In the excavation this red clay and the debris have yielded mostly advanced Acheulian artefacts, although a few handaxes, and cleavers with early Acheulian affinities were also encountered in the same trenches but in the lower levels. An identical tool assemblage has been noticed in the red concretionary clay exposed in the river sections.

In the Narmada sections the deposits of the **Lower Group** and **Upper Group** are separated from each other by an erosional nonconformity. The **Upper Group** has yielded post-Acheulian industries **(Late Soan** of De Terra[2]), along with the rolled and redeposited early implements. What time gap this unconformity represents is difficult to estimate, for there is no faunal difference between the **Lower Group** and the **Upper Group,** both of which contain Mid-Pleistocene fauna. Recently, Badam[3] has suggested that the Red Clay/Boulder conglomerate horizon (Gravel I) which has yielded Early and Middle Palaeolithic tools along with typical Middle Pleistocene fauna may be dated between 40,000 and 150,000 B.P. (Late Middle Pleistocene to Early Upper Pleistocene). The overlying cemented sandy gravel (Gravel II) and the yellow or pink cross-bedded sand and silt yielding Middle Palaeolithic tools along with Upper Pleistocene fauna date from 40,000 to 15,000 B.P. The topmost sub-Recent black alluvium and gravel containing semi-mineralised bones is Early to Mid-Holocene. Recent studies in the Godavari and Narmada Valleys indicate that the antiquity of Middle Palaeolithic

1. H. de Terra and T. T. Paterson, *op cit*, pp. 314 and 316.
2. De Terra and Paterson, *Ibid*, p. 319.
3. G. L. Badam, Quarternary Palaeontology of the Central Narmala Valley and its implications in the prehistoric studies, *Colloquim-Geological Survey of India*, Hyderabad, June 18-19 (1976).

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tools goes beyond the range of 40,000 B.P. Similar evidence has been obtained in West Asia and in parts of Africa. It is clear that the fossils, hitherto considered as index for the Middle Pleistocene **(Equus namadicus, Bos namadicus, Elephas hysudricus, Stegoden insignis-ganesa)** in fact range from Middle to Late Pleistocene. Other species like **Elephas maximus, Cervus duvauceli, Rhinoceros unicornis** etc., range from Late Pleistocene to Holocene, and only **Hexaprotodon namadicus** and **Sus namadicus** are to-day considered as index fossils of the Middle Pleistocene.

Based on the recent palaeotological study of the Narmada alluvial deposits, it appears that for the greater part they belong to the Upper Pleistocene.

At Adamgarh, the deposit yielding post-Acheulian (Middle Stone Age) artefacts overlies the Acheulian deposit without any marked stratigraphic change. As has been said earlier (p. 34), these post-Acheulian tools, however, are devoid of any handaxe facies and this perhaps marks a typological change. Looking to the evidence obtained in the Adamgarh excavation, the time-gap between the two groups of deposits on the Narmada, does not seem to be of a very long duration.

The Middle Stone Age (Post-Acheulian) industries occur in slightly different stratigraphic positions at different localities. Along the Narmada proper these industries have been reported by De Terra[3] from the gravels of **Upper Group,** which observations have been corroborated by Mc Cown and Banerjee, and later by Khatri[4]. Sankalia and Subba Rao[5] have distinguished three groups of gravels and silts in the Middle Narmada Valley around Maheshwar, of which the third group has yielded the largest number of Middle Stone Age artefacts. More or less similar stratigraphy has been seen by Sankalia[6] in the Pravara river. In the Wainganga Basin, Joshi[7] noticed two gravel beds separated by a silt deposit, and although both of them yielded Middle Stone Age artefacts and no tools of the handaxe group, the lower gravel contained tools of late Acheulian affinities (Wangange-A), while the upper gravel yielded tools assignable to the advanced Middle Stone Age industries (Wainganga-B).

The microlith-bearing black clay met with in the excavation overlies the earlier red lateritic clays with a distinct erosional unconformity[8]. In the case of the Narmada river deposits De Terra[9] postulated a period of very intense erosional activity following

3. De Terra and Paterson, *Ibid*, p. 319.
4. A. P. Khatri, "Stone Age and Pleistocene chronology of the Narmada Valley (Central India)", *Anthropos* Vol. 56, (1961), pp. 519-530.
5. H. D. Sankalia, B. Subba Rao and S. B. Deo, *The excavations at Maheshwar and Navdatoli*, (1958), pp. 35-41.
6. H. D. Sankalia, "Animal-fossils and Palaeolithic industries from the Pravara Basin at Nevasa, District Ahmednagar", *Ancient India*, No. 12 (1956), pp. 37-40.
7. R. V. Joshi, "Middle Stone-Age in India", *Atti del VI Congresso Internazionale delle Scienze Preistoriche e Protostorich*, Vol. III (1966), pp. 277-279.
8. R. V. Joshi and M. D. Khare, "Microlith-bearing deposits of Adamgarh rock-shelters", *Studies in Prehistory (R. B. Foote Memorial Volume)*, Ed. Sen and Ghosh (1966), pp. 90-95.
9. H. De Terra and T. T. Paterson, *Studies on Ice Age in India* and associated Human Cultures, 493, (1939) p. 319.

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the deposition of the gravels and silts of the **Upper Group.** He observed that in several places there were very deep cuttings in the gravel-silt deposits which were subsequently filled in by sands. On the top of these sands was a little fine gravel, overlain by the surface black soils. At some localities the fine basal gravel of the black soil is absent and in its place occurs the thick silt bed. In such cases, the pre-pottery microliths occur in this silt, while the black soil overlying the silt yields Chalcolithic blade-industries. Thus, the fine gravel and sand, and the black soils, are the microlithic horizons on the Narmada. This stratigraphic sequence in the river-section is repeated more or less in the same way in the deposits on the Adamgarh hill. It may be mentioned here that similar events have also been noticed in the Damoh[10] area. The stratigraphical comparisons of the Adamgarh site and the sections exposed in the Narmada river at Hoshangabad and elsewhere have to be restricted to the above observations.

No fossils were found in the Adamgarh excavation in the deposits yielding Early and Middle Stone Age industries. The microlithic levels contained bones and some carbon material as has been reported in the section 5 (p. 82).

It is difficult to build up a climatic sequence from the excavation data. The basal laterite is of a detrital variety derived from the primary laterite formed on the Deccan Trap material. Its presence at the base of the tool-bearing layers cannot be taken as evidence of a Wet Phase. The primary lateritization may have taken place due to a certain climatic change favouring this kind of weathering of the underlying rocks, and it may be true for the laterite met with in the borings near Pawar Kheda a place 6 kms south of Adamgarh, and the one reported by De Terra underlying the deposits of **Lower Group.** The lateritization of the quartzites and sandstones of the Adamgarh hill is brought about by the ferruginous clays from the fans of detrital laterite which is derived from the erosion of the primary laterite on the trap. This event of secondary lateritization on the hill may be connected with the same activity which formed the boulder-bed in the **Lower Group** of the Narmada deposits. The basal bouldery gravel of the **Lower Group** is considered to have been formed during Wet Phase. It may be during this wet phase that the primary laterite was extensively eroded, and, where the drainage directions in the Narmada Basin were favourable, the resulting ferruginous fragmentary and clayey mass of the primary laterite was laid down on the varied geological formations. But this is a tentative hypothesis which needs to be substantiated.

The origin of the microlith-bearing black-clay on Adamgarh hill, is, as discussed on p. 40, the result of severe wind activity, which probably took place during an appreciably dry climate following the wet phase. In India, most of the microlithic sites are associated either with coastal sand-dunes as in Gujarat, or Tinnevelli District (**Teri** sites) or provide the evidence for a dry phase in the form of fine sands or loessic silts, or occur in the semi-arid belts of Mysore (Jalhalli sites) thereby indicating a dry climatic environment.

10. R. V. Joshi, "Stone Age industries of the Damoh area, Madhya Pradesh," *Ancient India* No. 17, (1961) p. 10.

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The quantity of finished and unfinished, as well as broken tools and the raw material used is itself a convincing measure of the size of this vast microlithic factory site. These tools could have been made on the adjoining river terrace or on the sand banks close to the river-bed. But the fact that the tool-makers took the trouble to transport such a huge quantity of finely crystalline siliceous material from a relatively distant place, like the gravel and sand spreads occurring right in the river-bed, suggest that there must have been some special advantage in the location of Adamgarh hill. As has been already pointed out, the scarp features of the low dipping sedimentary Vindhyan rocks, exposed in this hill, have resulted in natural rock-shelters produced by differential rock erosion. During the Mesolithic period wind activity seems to have been quite strong and thus may have acted as a deterrent to settlers on the river terraces, although normally the people would have preferred open sites, considering the then prevailing warm and dry climate. The terrace-facet on Adamgarh hill, with the adjoining shelters must have been an ideal site for the location of the microlithic camps. The nearness of water and the Savana-type grasslands interspread with a few centres of thick forest vegetation teaming with the wild animal life were again added advantages of Adamgarh hill, which also had a commanding position on the otherwise levelled river-terrace.

Innumerable natural rock shelters are scattered throughout the entire Vindhyan range and its off-shoots. While surveying the small region adjacent to Barkheda on the northern bank of the Narmada opposite Hoshangabad the writer has discovered several such sheltered spots. Only in a very few cases, however, is there a little occupational deposit around the shelter, inside of which the natural rocky floor is covered by wind-blows dust.

Occasionally in some places a handful of microliths are found scattered about. Most of these shelters, however, bear rock paintings somewhat similar to those at Adamgarh.

A large group of rock-shelters similar to those at Adamgarh occurs on the northern bank of the Narmada at Bhimbetka (22°30'N: 77°37'E), about 30 km. north of Hoshangabad. Several of these shelters have been excavated by Misra and Wakankar[11]. The succession of cultures here is broadly the same as that encountered at Adamgarh. The maximum deposit dug so far is about 4 m.

At Bhimbetka the basal deposit contains the Acheulian industries showing very advanced forms. There is a complete absence of choppers and chopping tools. The associated deposit is reddish in colour and very compact. It is however, not lateritic.

The Acheulian industries are succeeded by very rich Middle Palaeolithic industries some of which show interesting Mousterian (Mousterian of Acheulian tradition) characteristics.

At the top occurs the Mesolithic industry which is geometric in nature and parallels the tools found at Adamgarh. Other material in Mesolithic level consists of hammers, querns, rubbers and occasional perforated discs, all made largely of basalt. In the topmost layer tiny sherds of plain red and grey wares occur in small numbers.

On the southern side of Adamgarh are the well-known rock shelters of the Mahadeo

11. *Indian Archaeology — A Review*, 1974-75 and 1975-76.

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Hills, the most important of which are around Pachmarhi. The Pachmarhi shelters are again very rich microlithic sites and the tool-bearing black soil is also fairly thick. All these localities are equally famous for rock-shelter paintings. Their situation in the jungle area, and the similarity of their tool kit with the Adamgarh microlithic assemblage, suggest that the location of the microlithic sites in this part of the Vindhyan region seems to have been governed by the occurrence of such natural sheltered spots which fulfilled the requirements of the microlithic hunter-gatherers especially with regard to their defence against wild animals. Incidently, these spots have the facility of spring waters nearby. In fact the same is true of the microlithic sites in the Mirzapur (U.P.)[12] area and the tract around Betul (M.P.) and the sites in the Cuddapah sedimentary formations located around Badami (Karnatak)[13] (the giant Sidalphadi shelter 5 km. east of Badami), in the vicinity of which there are still a number of streams which flow for at least four or five months of the year. The limestone caverns, occurring close to the stream-beds in the Kurnool region, in South India[14] which have yielded Upper Palaeolithic industries within them, are a few more excellent examples of sheltered sites in India.

Several of the coastal microlithic sites in Gujarat, e.g. Langhnaj[15] occur in sand dunes. These are the real open-air camps of the microlithic period. Water facilities in this dry tract were available only at selected spots like an oasis formed within a ring of sand dunes. This appears to be the most important geographical factor in the location of such microlithic sites. The belt of land surrounding this arid landscape may have supported at least grassland type vegetation at that period to supply the animal and vegetable food-requirements of the microlithic settlers.

The location of other coastal sites, like Todd's sites near Bombay[16] and the Teri[17] sites at the southern tip of this country, might have been prompted by the availability of sea food and the fresh-water ponds formed within the coastal sand dunes.

The microlithic sites occurring in the vicinity of the bouldery outcrops of granite as around Jabalpur or several sites in Mysore[18], are comparable, in their natural setting to those in the Vindhyan region.

Examples may be quoted of the sites situated on river or stream banks and also those near water-falls,[19] Nagarjunakonda,[20] Lalitpur, Birbhanpur[21] etc. — all of which en-

12. B. Allchin, Morhana Pahar : A Rediscovery, *Man* Vol. LVIII, (1958), pp. 153-155.
13. R. V. Joshi, Prehistoric caves and rock-shelters in India, *Uttar Pradesh* (Lucknow, 1963) Vol. XXI, No. 5, pp. 47-52.
14. *Indian Archaeology* 1957-58—*A Review* (1958) pp. 9.
15. H. D. Sankalia, The microlithic industry of Langhnaj, Jour. Gujarat Res. Soc. 18, No. 4, (1956), pp. 275-284.
16. K. R. U. Todd, The microlithic industries of Bombay, *Ancient India*, 6 (1950), pp. 17.
17. F. E. Zeuner and B. Allchin, The microlithic sites of the Tinnevelly District, Madras State, *Ancient India*, 12, (1956), pp. 4-20.
18. M. Seshadri, *The Stone Using Cultures of Prehistoric and Protohistoric Mysore* (London, 1956).
19. *Indian Archaeology* 1957-58—*A Review* (1958), p. 26.
20. K. V. Soundara Rajan, Studies in the Stone Age of Nagarjunkonda and its Neighbourhood, *Ancient India*, 14 (1958), pp. 49-113.
21. B. B. Lal, Birbhanpur, a microlithic site in the Damodhar Valley, *Ancient India*, 14 (1958), pp. 4-48.

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joyed the advantages of easily available food and water.

### (ii) Early and Middle Stone Age Industries.

The occurrence of pebble tools, i.e. unifacially or bifacially worked choppers in the Indian Stone Age industries has lately become a controversial subject to a variety of interpretations. The problem was first raised by De Terra after the discovery of the Soan lithic industries in West Pakistan, which he regarded as of an independent tradition, distinct from the 'Madras handaxe industries' of South India. When similar pebble implements were discovered at almost all the palaeolithic sites of the sub-continent every attempt was made to explain their occurrence on the basis of migration or diffusion of the two tool traditions across the length and breadth of this country. Some scholars felt that the pebble-tool chopper industry forms the basal tool-bearing horizon of the Early Stone Age industries. Unfortunately this has not yet been stratigraphically established, as at the sites thus far explored both the pebble tools and the handaxe industries — the latter made either on pebbles or pebble flakes or on blocks or thick flakes therefrom — have been invariably found in a mixed state. Attempts to trace in the Narmada Basis the handaxe-free gravel-bed underlying the **Lower Group** of De Terra have not yet been successful.[22] In the absence of stratigraphic data the inevitable tendency is to distinguish the different components of this possible mixture of two seemingly different traditions only on the basis of the physical and technological characters of the tools. A few sites yielding exclusively pebble-tools have been recently reported but, as will be discussed later, it is not known whether they represent Early or Middle Stone Age tool assemblages.

On the basis of the typological studies of the Soan collections housed in the University of Cambridge, as well as a smaller recent collection made by Graziosi, now in the museum of Florence, Italy, the author sees no reason to differentiate the pebble-tools and the handaxe industries of the Soan Basin as being of two different tool traditions. Both appear to be part and parcel of the Early Stone Age industries. The predominance of pebble tools at any particular site seems to be conditioned by the availability of pebbles. However, unless De Terra's Soan sites are re-examined and the exact location of the pebble tools and handaxe industries determined in the light of the evidence obtained from larger number of sites in India, these deductions, based on museum collections, will necessarily be very tentative, though they cannot preclude us from evaluating as a whole the vast palaeolithic collections from widely distributed sites in this country.

The evidence thus far available, therefore, shows that the pebble tools and handaxe group are inseparable adjuncts of the Early Stone Age industries both of which were utilized by prehistoric men for certain distinct functions. Basing his observations on surface collections from the Nagarjunakonda Valley, Soundara Rajan[23] writes, "In Peninsular India, however, the available evidence is strongly in favour of a basic bifacial hand-

22. S. G. Supekar, *Some aspects of Pleistocene Stratigraphy and Prehistory of the Central Narmada Basin etc.* Ph.D. thesis submitted to the University of Poona (Poona 1968).
23. K. V. Soundara Rajan, Studies in the Stone Age of Nagarjunakonda and its neighbourhood, *Ancient India*, No. 14, (1958) p. 85.

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axe industry manifesting in its earliest stages a pebble-tool facies as a crude primitive endeavour fully within the cultural folds of the bifacial complex and disappearing by the Early Acheulian stage".

On the other hand K. D. Banerjee's[24] work in the same and adjoining region has shown that the pebble element, though present feebly in the Acheulian industries, becomes an important nay, a dominant factor in the late Acheulian and post-Acheulian industries.

And at this stage even the unifacial forms of pebble-tools are as common as bifacial ones. A similar observation has been made by him (K. D. Banerjee) in the vicinity of the Gudiyam cave situated not far away from the famous palaeolithic sites of Attirampakkam and Vadamadurai near Madras. It may be added here that these aspects have been ascertained by Banerjee from the excavated material, and that they are not based only on the statistical studies of surface collections.

The evidence from the Adamgarh excavation is very much in accord with Banerjee's finding, in the areas mentioned above. If the functional characters of pebble tools are considered they are the choppers and chopper-chopping implements of unificial and bifacial trimming. As observed at Adamgarh, such tools could be made on pebbles, as well as on blanks, or on thick flakes. This entire assemblage of the chopper group shows late or Advanced Acheulian features, as observed in the flaking technique and resulting forms of the tools.[25]

The proportion of these chopper tools in the total collection is very significant. In both the types those made on pebbles are greater in number than those on blanks and the bifacial types occur more frequently than the unifacial ones.

In succeeding Middle Stone Age industries also, there are a few core-scrapers and choppers worked either unifacially or bifacially. No doubt these specimens are reduced in size compared with those found in the Early Stone Age assemblages but techno-typologically they are no different from the earlier ones. Adamgarh is yet another locality yielding chopper and chopper-chopping implements even in the post-Acheulian stage.

**(iii) Microlithic Industries.**

The microlithic industry is based primarily on blades, although the flake and core components are not rare. The largest number of points, awls and crescents are made on blades. The flakes have been utilized mainly for scrapers and points, while the fluted blade cores — most of which may be residual cores — have been turned into steep core-scrappers with little retouch. The size of the tools varies according to the size of the blades that could be removed from the siliceous nodules. Barring the broken tools and a few large-sized tools, the average size of the microliths varies from 25 × 6 × 3 mm to 15 × 4 × 1 mm.

The most important features of the Adamgarh microlithic industry may be summed up as follows :

(i) presence of the so-called geometric elements like triangles and trapezes;
(ii) presence of pottery;
(iii) frequent occurrence of haematite nodules more or less in all the levels;

24. Information kindly supplied by Dr. K. D. Banerjee.
25. R. V. Joshi. Acheulian Succession in Central India, *Asian Perspectives*. Vol. VIII, No. 1, (1966), pp. 150-163.

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(iv) occurrence of animal bones and charcoal fragments practically throughout the deposit;

(v) presence of ring-stones in the upper levels;

(vi) presence of glass, iron objects and beads in the shallow deposits, mostly in trench ADG-12.

(vii) limited occurrence of Chalcolithic-type pottery and crested-ridge flakes.

Besides the presence of pottery in association with microliths, the Adamgarh site also shows elements of the Chalcolithic, Neolithic, and Iron-Age cultures in deposits occurring near the surface. There is no level, which can be considered as **non-pottery-bearing** horizon or **non-geometric** horizon.

According to present convention, all this microlithic material should be classed as **geometric** due to the presence of triangles and trapezes. For distinguishing the mesolithic industries of Britain, J. G. D. Clark[26] introduced two new terms for microliths as 'geometric') and 'non-geometric' in place of Buckley's earlier classification for them as 'narrow blade' and 'broad blade' industries. In the 'narrow blade' industries especially common are the triangles, while pen-knife points, small crescents, trapezoids, **petit tranchets**, and angle burins form the other tool types. The 'broad blade' industries are composed mostly of blades truncated either transversely or obliquely. Truly geometric forms are practically absent.

The Adamgarh microlithic industries may be evaluated on the basis of these distinctions between the two sets of microliths. The collection contains an almost equal number of points and blades. Within the group of points we have flake points and blade points with single retouched sides, marginally retouched and obliquely blunted pen-knife varieties. The crescentic points are also quite significant. Among the blades, the most common are simple blades and curved-back or crescentic blades. Besides, there is a very small number of triangles, trapezes, and burins. So, although there are a few so-called geometric forms, the industry as a whole is decidedly a "point and blade" assemblage. Even in Buckley's 'broad blade' industry which Clark calls 'non-geometric', geometric microliths are not altogether absent but they are **very rare** or **practically absent**.

Considering the percentage of triangles (3.7%) and trapezes (0.24%), the Adamgarh industry may not necessarily be wholly 'geometric' and, therefore, a later industry on the basis of microlithic typology only. It is true, however, that a part of the microlithic assemblage associated with metal and glass objects definitely represents a non-microlithic and therefore later horizon at Adamgarh. The rest of the microlithic group together with its pottery and animal bones seem to be Mesolithic.

The functional character of the triangle, particularly of the isosceles variety, and the crescent seems to be more or less identical as both could have been used as barbs for arrows, as transverse arrow-heads, or as component parts of a composite tool like the sickle. Very frequently we come across types intermediate between a true triangle and a true crescent which seems to justify this assumption. The scalene triangles may also be varieties of points. The trapezes are

26. J. G. D. Clark, *Mesolithic Age in Britain*, (Cambridge, 1932).

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so insignificant in the collection that they themselves do not indicate a special functional advantage marking any economic revolution. This group seems to be, at least partly, a by-product in the manufacture of micro-burins or simply a variety of doubly blunted blades which may have been used in conjunction with the triangles or crescents in composite tools.

The occurrence of crescents in these microlithic industries is certainly an important aspect. This implement is invariably present in microlithic industries ranging from the Mesolithic to the Chalcolithic. Inspite of its specific geometric form, curiously enough, its presence in a certain industry does not necessarily qualify that industry to be termed as "geometric". Since its manufacture from a parallel-sided blade involves the elaborate process of shaping and retouching, its proposition in any microlithic industry should be a measure of technological knowledge. It serves as a cutting tool when mounted in a sickle or when in the form of a transverse arrow-head or barb as a hunting implement. In its asymmetrical form it can be used as a crescentic point. In the Adamgarh microlithic industry crescentic blades are 8.5% of the total blade group, while crescentic points total only 6.24% in the entire group of points. Of the total collection of microliths such crescentic tools constitute only about 6%. Thus the so-called geometric forms together total about 10% in the microlithic industry of Adamgarh.

Next to these geometric microliths the scrapers which constitute about 5% of the total collection, seem to be the distinct feature of this industry. The relative proportion of scrapers, made respectively on flakes, blades and cores, is approximately in the ratio of 1 : 1.7 : 15, which shows the dominant use of cores for making scrapers. Most of these core-scrapers are made on fluted cores and since the microliths are blade-industries the partially used up cores have been conveniently utilised for designing scrapers.

Awls and borers could be used only for boring bones and hides, but their proportion is so small that they do not make any specific impress on the general character of the industry.

Burins, although occurring rarely at Adamgarh, are significant as tool-types. They are equally rare in the Indian Middle Stone Age industries. In the absence of mobiliary art objects or rock engravings at Adamgarh it is difficult to ascertain the function of this tool type in the microlithic industry. It must be mentioned here that these are not the chance products of doubtful nature like the chisel-ended prismatic cores showing burin forms.

The scrapers are decidedly effective as scraping tools, for the removal of hair and flesh from the animal skins.

Apart from the above mentioned minor but significant tool-types the Adamgarh microliths comprise two major components — points and blades. Each of them can be distinguished by various sub-types. Both occur in almost equal proportions implying that each of them had a specific functional value in the life of the microlithic inhabitants. Broadly we may then say that the Adamgarh industry is both "point-based" and "blade-based". The occurrence of points is indicative of some hunting economy. The blades, along with some crescentic forms, pen-knife, and single side-

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backed blades, make an outfit suitable for cutting tools, either singly or in composite-tools like the sickle-blades.[26]

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26a. R. V. Joshi, Late Mesolithic Culture in Central India, *La Pre'histoire* (*Problemes et Tendances*), Editions due Centre National de la Recherche Scientifique, (Paris, 1968), pp. 245-254.

26b. R. V. Joshi, The significance of Microlithic tools in Post-Palaeolithic Industries in India, *Radiocarbon Seminar and Indian Archaeology* (Ed. D. P. Agrawal and A. Ghosh), (Bombay, 1973), pp. 54-57.

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# 5. CHRONOLOGY

On the basis of palaeontological evidence, the Early Stone Age industries of the Narmada Valley have been dated to the Late Midlle Pleistocent. Since both stratigraphical and typological correlations can be established between these deposits and the accompanying lithic industries from Narmada sections at Hoshangabad with those at Adamgarh, there should be no difficulty in accepting the same Middle Pleistocene (or Late Middle Pleistocene)[1] horizon for the Early Stone Age industries of Adamgarh. As regards the Middle Stone Age artefacts from Adamgarh no direct correlation with the corresponding Narmada industry can be attempted. In the river-sections at Hoshangabad the Middle Stone Age artefacts have not been traced **in situ** although a fairly large number of them occur in the river gravels. Such artefacts are generally made on quartzite while at most of the sites on the Narmada, chert and chalcedony are preferred. The tool-types, however, do not show any marked difference. In the absence of faunal data this industry from Adamgarh, cannot therefore be precisely dated, except to point out its general similarity with comparable industries from the Narmada river and from sites elsewhere in India.

The microlith-bearing deposit, as discussed on p. 40 is due to the intensification of wind activity, suggestive of climatic change. It is interesting to note that a similar dry climate seems to have prevailed in other parts of this country where microlithic industries have been found.

All the microlithic industries in India belong to the Holocene or sub-Recent period. The details of possible climatic fluctuations within this period are not precisely known. A large quantity of animal bones and a limited amount of charcoal have been obtained from some Mesolithic sites. The $C^{14}$ date from Adamgarh[2] uncharred animal bones from ADG-2, is 2765 ± 105 (2845 ± 105) B.P. and from shells from ADG-10, is 7240 ± 125 (7450 ± 130) B.P. The dates for the microlithic deposits from Lekhahia

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1. See p. 72.
2. D. P. Agarwal and Sheela Kusumgar, Radiocarbon dates of some Prehistoric and Pleistocene samples, *Current Science* 36, No. 21 (1967) pp. 566-568.
   (i) TF-116, Rock shelter, 2765 ± 105 (2845 ± 105) B.P.
   Uncharred bones from Trench ADG-2, Layer 3, Depth 1.90 m. Comment : Only inorganic fraction dated, hence probability of contaminantion high.
   (ii) TF-120, Rock shelter, 7240 ± 125 (7450 ± 130) B.P.
   Shells from Trench ADG-10, Layer 2, Depth 0.15 to 0.21 m. Comment : Sample from pre-Chalcolithic microlithic phase.
   General comment : Dating of collagen (organic fraction) from some more bone samples from Adamgarh can alone confirm the chronology of this mesolithic culture.

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are 3560 ± 105 (3660 ± 110) B.P. At the latter site the excavator claims to have found a succession of microlithic industries beginning with the non-pottery phase followed successively by non-geometric and geometric microlithic phases. As discussed on page 79 of this report, no reliance can be placed on the so-called geometric and non-geometric stages exclusively on typological grounds.

The age of the Langhnaj microlithic site has been found to be 3875 ± 105 (3990 ± 110) B.P. The $C^{14}$ date of Adamgarh microlithic culture comes to be about 800 to 1000 B.C. from a sample of uncharred animal bones while that from shells comes to be about 5000 B.C. The $C^{14}$ dates of the Chalcolithic culture at Navdatoli or Maheshwar on the Narmada river have been found to be between 1500 and 1700 B.C. No Neolithic culture has been reported from the Narmada valley. The Adamgarh microlithic culture would then have to be regarded in age as contemporary to the late phase of the Maheshwar.

At Adamgarh in the trench ADG-12 distinct Chalcolithic black-on-red ware has been found almost in the surface deposits while no sherd of this variety was noticed in the rich microlith-bearing layers in the trenches ADG-1 and ADG-2, which stratigraphically represent earlier deposit. The Adamgarh microlithic culture on the stratigraphic and other evidence, therefore, will have to be considered as pre-Chalcolithic.

Although the radio-carbon assays for the early microlithic deposit of Adamgarh date it to c. 5000 B.C. the advent of pottery, (Period IA), is to be assigned to the overlap between the late food collecting stage and the beginning of food production. This would fall somewhere in the fourth millennium B.C. The evidence from Bagor in Rajasthan demonstrates that a food producing community lived there in the fourth millennium B.C. And from Adamgarh itself we have evidence of domesticated animals in the fifth millennium B.C.

The following species of animals have been identified by Bhola Nath[3] from the bones excavated from the Adamgarh rock-shelters.

**A. Domestic**

*Canis familiaris* Linn. (Domestic dog)
*Bos indicus* Linn. (Zebu or the one-humped cattle)
*Bubalus bubalis* Linn. (Buffalo)
*Capra hircus aegagrus* Erxl. (Goat)
*Ovis vignei* Blyth race *domesticus* (Sheep)
*Sus scrofa cristatus* Wagner (Pig)

**B. Wild**

*Varanus grisius* Daud (Monitor lizard)
*Hystrix cristata* Linn. (Crested porcupine)
*Equus* sp. (Horse/donkey)
*Cervus duvauceli* Cuvier (Barasingha)
*Cervus unicolor* Kerr (Sambhar)
*Axis axis* Erxl. (Chital)
*Lepus nigricollis* Cuvier (Indian hare)

The ratio of domesticated animals to those of wild is 1:1. In most cases the bones are fragmentary and fragile and hence unsuitable for measurements. Some of the bones (e.g. those of *Bos indicus, Sus scrofa cristatus, Axis axis* etc.) are charred sug-

3. Bhola Nath, "Animal Remains from Adamgarh Rock shelter", *Bulletin, Indian Museum*, Vol. II, No. 1, (1967), pp. 29-37).

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gesting that they may have been roasted in an open fire. The bones of *Bos indicus, Sus scrofa cristatus, Ovis vignei* Blyth race *domesticus* etc., have definite cut marks indicating their probable use as food.

The animal bones are represented in general by vertebrae, isolated teeth, fragments of tibia, pelvis, metatarsals, metacarpals, fragments of the humerus, mandibles and maxillae, femur, rib fragments, calcaneum, astragalus, scapulae, antlers, etc. Most of the bones belong to adult individuals. Big bones, however, generally belong to young individuals. The report of the crested porcupine (*Hystrix cristata*) is the first of its kind from any of prehistoric sites in India. The remains of cattle resemble the smaller humped short-horned variety from Harappa and Hastinapur. The other osteological parts also bear a close similarity with their counterparts found at Harappa, Mohenjodaro, Hastinapur, Maski, Rangpur etc. Some of the buffalo bones seem to belong to the wild variety, being stouter and having strong muscular ridges. The smaller number of buffalo bones found show that the inhabitants maintained small herds of these animals. The remains of sheep are smaller in number compared with those of goat.

Along with the animal remains a few human bones have also been found, represented by the radius, humerus, femur, tibia, etc. It may be mentioned that at Bhimbetka rock-shelter site, situated not far away from Adamgarh, a few human skeletons belonging to Mesolithic period have been recently unearthed, the report of which is yet to be published.

Thus the industry reveals a hunting based economy and a nomadic (camp) life. Accordingly, and in view of the fact that it shows Chalcolithic contact, in its last phase, its tentative dating should be earlier than 1800 B.C. There is no evidence of agriculture or pastoralism. Thus chronologically it should belong to the Mesolithic. The presence of domestic animals may at the most suggests some sort of Neolithic tradition hitherto unrecognised. This will put the industry in a position comparable to the Natufians[4] of Mount Carmel who lived as a primitive group in the milieau of a Neolithic environment.

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4. Dorothy A. E. Garrod, The Natufian Culture : The Life and Economy of a Mesolithic People in the Near East, *Proceedings of the British Academy (London)*, 1957, Vol. XLIII, pp. 211-227.

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# 6. POTTERY AND OTHER ANTIQUITIES

By

M. D. Khare

## A. POTTERY

On the basis of forms and fabric the entire assemblage of sherds can be divided into three periods I, II and III. Period I can be sub-divided into A and B. Period IA (Late Mesolithic to early Neolithic) is characterised by crude pottery and microliths. Period IB is distinguished by a thin fine red ware, occasionally carrying wavy designs painted in black-on-red, a black and red ware and long parallel-sided blades dated to the Chalcolithic period. Period II (Early Historic) approximately dated from 200 B.C. to 500-600 A.D. can also be divided into A and B, but the division is not very clear. The succeeding period (III) has a predominance of grey ware, associated with red ware typical of early Mediaeval period.

**Period IA.** Only ADG-1 and ADG-12 have yielded about half a dozen sherds of red ware from the depth of about 85 cms below the surface. Most of these sherds have a washed appearance, apparently due to constant dampness of the black clay in which they were found. Medium to fine fabric and devoid of any slip. Fine particles of sand and mica dust have been mixed with the paste, which was levigated. A thin grey line is noticed in the core section in an otherwise uniformly fired pottery. The shapes include are deep bowls and medium-sized pots with splayed or out-curved rims comparable with the forms and fabric of contemporary deposits at Nagarjunakonda and Langhnaj. No decorated sherds have been recovered from this phase.

**Period IB.** The few sherds of this phase are distinguished by a fine thin red ware, and black and red ware. One of them which is very small has a black-on-red painted design, thereby suggesting affinity with the Chalcolithic complex of Central India. Almost all the sherds are of fine fabric, thin cross-section, wheel-made and very well fired. But for a few medium sized pots, most of the fragments are of deep bowls and occasionally dish forms.

From the restricted amount of pottery from both the phases of Period I it seems that the shelters were used by two different groups of people for a short period and perhaps each consisting limited number of persons.

**Period II :** The excavated examples from this period are again very few but mark the advent of Early Historic forms. The wares represented are red, grey and all black and usually the fabric ranges from coarse to medium. All the sherds are wheel-made and bear various slips and decorations. While the black ware, though fired under reducing conditions in the kiln, is fairly strong, the red ware is stronger as a result

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of oxidising conditions in the kiln. The latter has, however, in certain instances, a grey to black core.

Red ware predominates but as stated above a few sherds of grey and black-slipped ware are also present. Special mention may be made of the micaceous ware, represented in the form of lid-cum-bowls — a common feature of the Early Historical pottery throughout Central India. The types in the red ware are mainly those of medium-sized pots, deep bowls, lid-cum-bowls, conical bowls, lamps, miniature vases and spouts in the order of frequency. Grey and black wares have only wide-mouthed deep bowls. The fabric of grey ware is also coarse to medium. The black-slipped ware is of poor quality and has thick section. All the pottery is wheel-made.

**Period III :** The pottery of period III, occurs in the upper levels of ADG-1 and ADG-12. It is represented by two wares viz., grey and red. The percentage of the grey ware is little more than that of the red ware, a very common feature of early Mediaeval deposits throughout India. The entire pottery is wheel-made and has been uniformly fired but for the grey core section in a few examples. The fabric ranges from coarse to medium. The grey ware is invariably unslipped, though in very rare cases has a smooth surface and in one instance has a black slip. Most of the red ware sherds are slipped.

Comparing the types of the two Periods II and III, it is clear that Period III has many new types not encountered in the earlier levels. Even the decorations are different. White-and-red and red painted designs on a pale brown surface make their appearance in the latter period. The other decorations are mostly incised, similar to those of Period II, but, in addition, a stamped variety also occurs. There are a few incised decorations on the shards of both the periods.

**Period IA :** Only five sherds have been classified here. As stated above, these sherds bear a close resemblance to the pottery recovered from the contemporary deposits at Langhnaj and Nagarjunakonda. (Fig. 20).

**Type-1:** A splayed out thickened rim fragment of a red ware **lota**-shaped utensil, is of medium fabric, burnt grey in its core-section and is devoid of any slip. The fine particles of sand mixed in the paste have left a porous surface. Uniformly fired, it comes from a depth of 60-70 cms in ADG-12.

**Type-2 :** A horizontally splayed out rim fragment of a medium sized red ware vase is of fine fabric, and has still finer particles of sand and mica mixed in the paste. Made of finely levigated clay and well fired, it comes from the depth of 60-80 cms in ADG-1.

**Type-3 :** An out-turned sharpened rim fragment of a small to medium sized red ware vessel of medium fabric, irregularly fired, as evidenced from its completely grey core-section. The exterior has a liberal sprinkling of mica and sand. A lack of oxidization in the kiln has left a light brown surface. It comes from the depth of 15-23 cms in ADG-1.

**Type-4 :** It is akin to above but differs in the sharpness and size of the rim. Of fine red ware it is uniformly fired but for a little grey core-section. It also carries particles of sand and mica in the paste and comes from the depth of 60-85 cms in ADG-1.

A variant **4a** also has an out-turned and sharpened rim but in size it is smaller than

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above. Though of fine fabric, with sand and mica mixed in the paste, it is not uniformly fired and as such has a completely grey core section. The exterior is turned light brown. From the depth of 19-24 cms in ADG-1.

**Period IB :**

Since the pottery recovered from this phase is again limited, only five sherds have been selected. (Fig. 20).

**Type 5 :** A fragment of medium sized vase of pale red ware with an outturned rim and expanding shoulders. Of fine fabric and very well fired, it comes from the depth of 60-70 cms in ADG-12.

**Type 6 :** A wide mouthed bowl type with a vertical externally thickened rim and ledged waist. Of fine pale brown ware uniformly fired, it has a little sprinkling of mica in the paste. From the depth of 3-22 cms in ADG-12.

**Type 7 :** A body fragment of a thin fine red ware dish with a carinated waist. Uniformly well fired, it has been treated with a red slip on both sides and comes from the depth of 60-70 cms in ADG-12.

**Type 8 :** A tiny sherd of thin red ware, which is very well fired, treated with a light red slip on its exterior and carries two bands painted in black on red around its body. ADG-12.

**Type 9 :** A black and red ware fragment of fine fabric, burnt to a light brownish red hue on its exterior and carries two incised graffity lines. From the depth of 26 cms in ADG-12.

**Period II :**

The Early Historic period of Adamgarh has yielded slightly more pottery than the preceeding periods. The forms and texture of the sherds are also quite different. The most common types met with are shallow and deep bowls, lid-cum-bowls and medium- to large-sized pots. The presence of a spout is quite conspicious. The decorations are also of common types. (Figs. 20 and 21).

**Type-10 :** A red ware bowl fragment with oblique sides is of medium fabric and indifferently fired. It has been treated with a light red wash. Two marks on the exterior appear to be accidental. From the depth of 48-60 cms in ADG-12.

**Type-11 :** A fragmentary conical bowl type of small size likely to have been used as a lamp. Only the disc base and part of the oblique sides are extant. Coarse to medium red ware fabric it has a porous exterior due to a few sand particles mixed in the clay. It is also not well fired and comes from the depth of 20 cms in ADG-12.

**Type-12 :** A miniature vase fragment of red ware with a featureless flaring rim and bulging sides. Of coarse to medium fabric, it is burnt grey in its core-section and treated with a light red slip on the exterior and interior upto the rim. From the depth of 23 cms in ADG-12.

**Type-13 :** A wide-mouthed shallow bowl fragment with a clubbed rim and oblique sides. Of coarse to medium fabric, it is burnt grey in section and treated with a thin reddish brown slip on both sides. From the depth of 30 cms in ADG-12.

**Type-14 :** A shallow bowl type with externally obliquely cut rim. Of coarse fabric, it is under-fired producing a completely black core section and grey surface. The exterior carries an accidentally impressed finger mark. From the depth of 3 cms in ADG-12.

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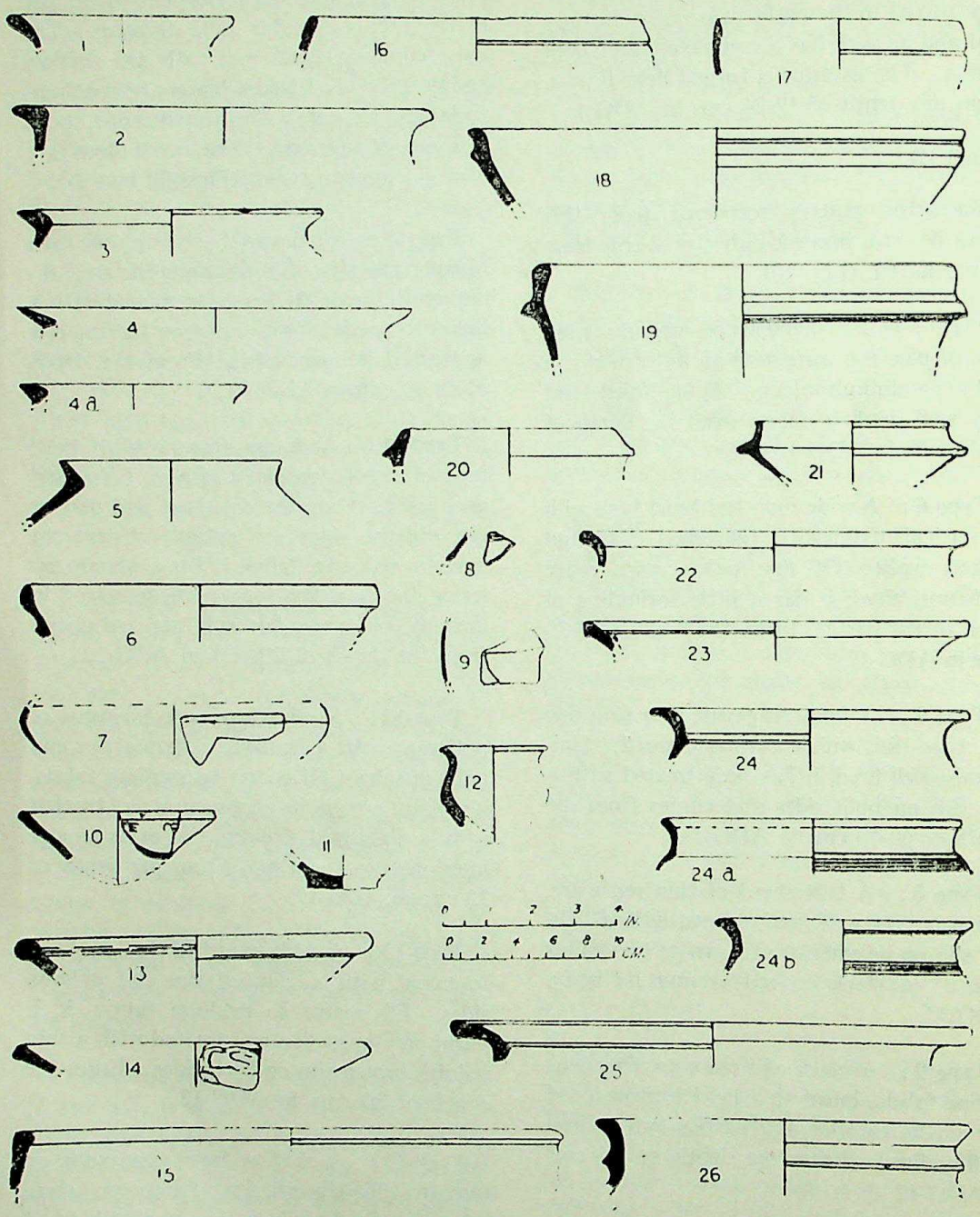


Fig. 20. Adamgarh Excavation : Pottery types

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**Types 10-14** are likely to have been used as lids as well.

**Type 15 :** A medium to large sized deep bowl of red ware with a nail-head rim and vertical sides. Of coarse to medium fabric and burnt black in its core-section, it is treated with a light glossy pale brown slip on the exterior and interior upto the rim. From the depth of 30 cms in ADG-12.

**Type-16 :** A medium sized deep bowl of grey ware with a thickened rim and widening sides. Of coarse to medium fabric, it is treated with a light black slip on the exterior. From the depth of 48-60 cms in ADG-12.

**Type-17 :** A small to medium sized deep bowl with a vertically sharpened rim and grooved shoulder. Of medium fabric, it is treated with a bright black slip on both sides. From the depth of 26 cms in ADG-12.

**Type-18 :** A deep basin type of red ware with an out-curved rim, mildly ledged shoulder and tapering sides. Of coarse to medium fabric, it is burnt grey in section and treated with a light slip on the exterior only. From the depth of 48 cms in ADG-12.

**Type-19 :** A large-sized lid-cum-bowl with a vertically thickened rim and ledged shoulder. Of medium fabric, it is treated with a thin reddish brown slip on both sides. The soot-stained interior and part of the exterior including the ledge indicate that it was used as a lid on a cooking vessel and very often kept upside down. From the depth of 30 cms in ADG-12.

**Type-20 :** A lid-cum-bowl of smaller size with a closing featureless rim and ledged shoulder. Of medium fabric, it is burnt grey in section and is also indifferently fired. Devoid of any slip, it comes from the depth of 22 cms in ADG-12.

**Type-21 :** A typical lid-cum-bowl of red ware with a flattened rim, short vertical sides and prominently ledged waist, to rest on the vessel. Of coarse to medium fabric, it is burnt in section, treated with slight red wash and has a liberal use of mica in the clay. This type is found at all the sites of Early Historical period in India datable to 3rd-5th century A.D.

**Type-22 :** A fragmentary medium sized red ware vase with a featureless flaring rim and concave neck. Of medium fabric, it is burnt black in section and treated with a glossy pale brown slip on both sides. From the depth of 30 cms in ADG-12.

**Type-23 :** A medium to large sized vase of underfired red ware with flaring externally vertically cut and internally grooved rim. Of coarse fabric, it is burnt completely black in its core section and treated with a thin black slip on the exterior and interior upto the neck. From ADG-12.

**Type-24 :** A medium sized vase with an outturned externally thickened rim and internally mildly ledged neck. This type is also very common at all the Early Historical sites. Of medium grey fabric, it is treated with a light grey wash on both sides. From the depth of 44 cms in ADG-12.

**Var. 24a :** A red ware different from the above type in its featureless rim and short vertical neck. Of thin and medium fabric, it is burnt black in section and treated with a light brown-slip on the exterior and interior upto the neck.

**Var. 24b :** A coarse red ware burnt completely grey and differs from the above in its thick sides. Like Var. 24a, it also carries a multi-grooved shoulder. Devoid of any slip, sand particles have been used very libe-

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rally in the clay. From the depth of 60-70 cms in ADG-12.

**Type 25 :** A large sized vase with a splayed out internally grooved rim and internally sharply turned neck. Of coarse to medium fabric, it is burnt grey in its thick core section and treated with a glossy brown slip, which has disappeared from exterior but is extant on the interior upto the neck. From the depth of 30 cms in ADG-12.

**Type-26 :** A large sized vase of red ware with an everted flattened rim and vertical externally ledged neck. Of coarse fabric, it is burnt black in section and treated with a red wash on both sides. From the depth of 26 cms in ADG-12.

**Type-27 :** A medium sized red ware vase having splayed out externally thickened and internally multi-grooved rim. A prominent rib runs around the neck on its exterior. Of medium fabric, it is burnt black in section and with grey interior. Plenty of sand particles and mica dust have been mixed in the paste. It also carries a light brown slip on its exterior. From the depth of 3.22 cms in ADG-12.

**Type-28 :** A medium sized vase of red ware with an externally obliquely cut rim and short concave neck. This variety is also very commonly met with in the Early Historical assemblages all over India. Of coarse fabric, it is burnt grey in section and treated with a thin red slip on the exterior and interior upto the rim. From the depth of 3-22 cms in ADG-12.

**Type-29 :** A narrow necked pot with a more sharply pronounced rim than above and a mild rib around its neck on the exterior. Of coarse to medium fabric, the traces of light red slip are seen on the obliquely cut rim. From the same depth and the trench as above.

**Type-30 :** A small to medium sized vase of red ware with an everted, flattened and grooved rim, which is mildly recessed on its interior. Of coarse to medium fabric, it is burnt black in section and seems to be devoid of any slip. Sand particles have been mixed in the clay. From the depth of 3-30 cms in ADG-12.

**Var. 30a :** It differs from the above in having a more pronounced rim. Of medium fabric, it is uniformly fired and appears to be having bigger particles of sand and grit in the clay. Treated with a red slip on the exterior and interior upto rim, it comes from the same depth and trench as above.

**Var. 30b :** This is similar to the above type but for its vertical neck and thin section. Of medium to fine fabric, it is burnt ashy grey in its core-section. It is ill-fired and treated with a dark reddish brown slip on the exterior and interior upto the rim. From the depth of 30 cms in ADG-12.

**Type-31 :** A fragment of a small to medium sized red ware vase with a flattened nail-head rim and short concave neck. Of medium to fine fabric, it is well fired and treated with a light red slip on the exterior and interior upto the rim. From the depth of 23 cms in ADG-12.

**Var. 31a :** This is similar to the above type but for an elongated and narrow neck. Fabric, slip and locus are the same as above.

**Type-32 :** A vase fragment of red ware with an everted externally thickened rim, and internally mildly carinated neck. Of coarse fabric, with sand particles in the clay, it is burnt grey in section and treated with a light brown slip. Depth 23 cms in ADG-12.

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**Var. 32a :** It has a smaller rim and is treated with a smooth greyish slip. Depth 44 cms in ADG-12.

**Type-33 :** A wide mouthed red ware vase with an everted rim and possibly with expanding profile. Of medium fabric, it is uniformly fired and treated with a light red slip on the exterior and interior upto the rim. Depth 23 cms in ADG-12.

**Type-34 :** A typical **lota** — type of red ware with a flaring rim. Of coarse to medium fabric it is burnt grey in section and appears to have been treated with wash. Depth 3-22 cms ADG-12.

**Type-35 :** A medium sized red ware vase fragment with a recurved rim. This type has also its analogues in most of Early Historical sites. Of coarse to medium fabric, it is burnt black in core-section and treated with a very thin slip on the exterior and interior upto the rim. The clay contains a good deal of sand in the paste. Depth 48 cms, ADG-12.

**Type-36 :** A tubular handmade spout of red ware luted to the body of a medium sized pot. Such spouts are also a common feature of Early Historic pottery. Of medium to fine fabric, it is burnt light grey in section and appears to be devoid of any slip. The spout has come out from the body, where it was luted with hand. It is affected by water and comes from the depth of 60-70 cms in ADG-12.

**Type-37 :** A body fragment of a medium sized pot of red ware containing sand and mica in the clay. Uniformly fired and thick-sectioned, it appears to have been treated with a red slip which, however, has disappeared. It might have been of some ritualistic use as well, as is indicated by a stamped mark resembling **Brahmi** letter M. From the depth of 60-70 cms in ADG-12.

**Type-38 :** A shoulder fragment of red ware jar of coarse to medium fabric, burnt grey in section and treated with a light reddish brown slip on the exterior. It carries pre-firing incised oblique strokes below the groove. From the depth of 40 cms in ADG-12.

**Var. 38a :** This is also a shoulder fragment of coarse red ware burnt black in section and treated with a glossy pale brown slip on the exterior. It has pre-firing incised slashes in between the groove above and incised wavy line below. Locus is the same as above.

## PERIOD-III.

This is datable to early Mediaeval period and is everywhere distinguished by the predominence of dull grey ware. Typologically also most of the forms are entirely new. The lack of sophistication in forms and fabric is perhaps due to the use of metal ware. However, the poor men continued to use the earthen ware. Although quite a good deal of information is available through the written history or existing records of this period, a systematic and careful study of different ceramic types would go a long way in determining the social conditions of that period. It is for this purpose some of the types have been classified below (Fig. 21).

**Type-39 :** A grey ware vase akin to type-22 of period II. Of coarse to medium fabric it is treated with a light black slip, which is extant only on the interior. ADG-12.

**Type-40 :** A narrow necked medium sized fragmentary pot with a splayed out externally grooved and dropping rim and long

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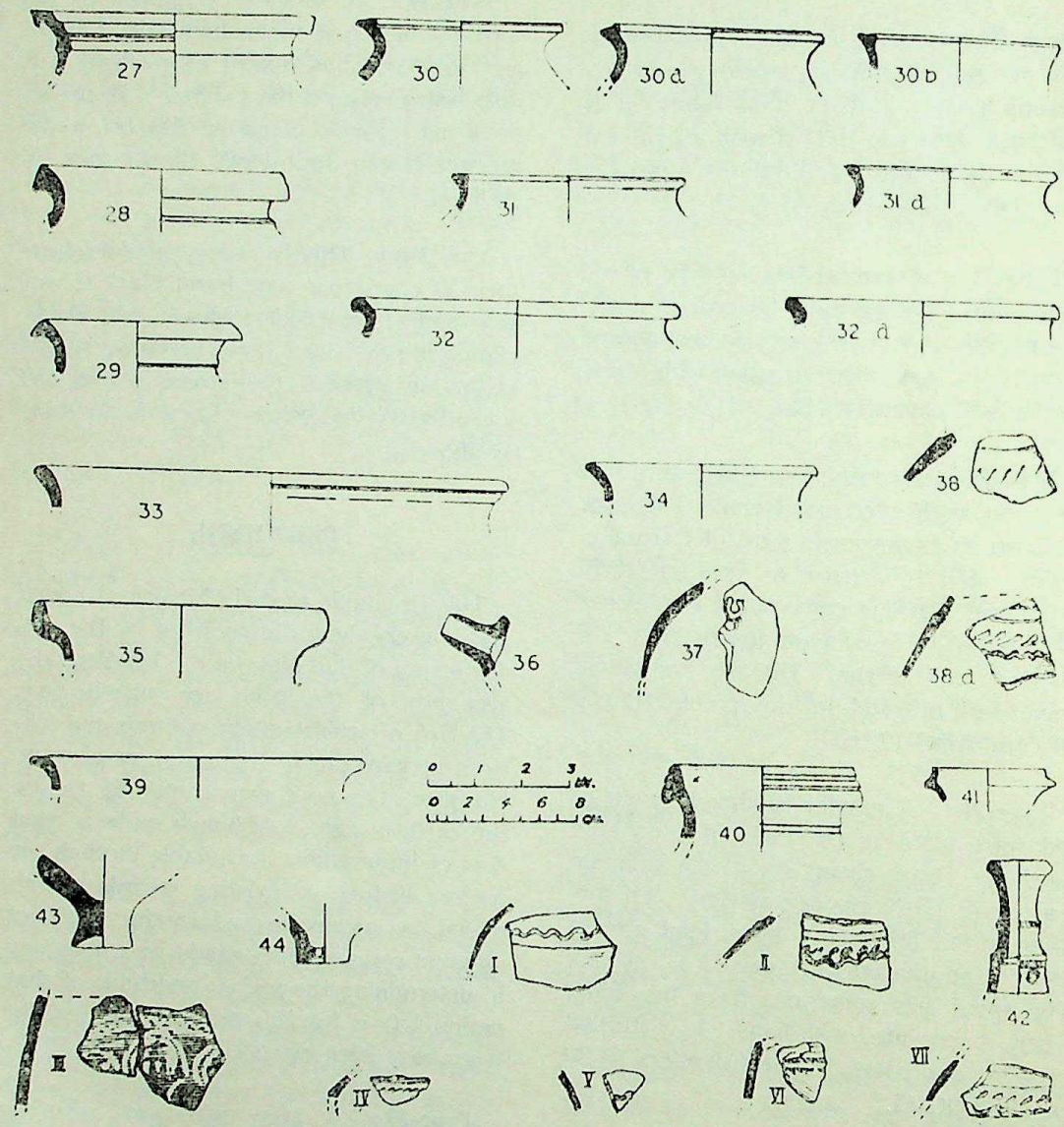


Fig. 21. Adamgarh Excavations : Pottery types.

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concave neck. Of medium grey ware and uniformly fired, it appears to have been treated with a light wash of the same clay. Depth 3-11 cms from ADG-9.

**Type-41 :** A miniature lid-cum-bowl of grey ware akin to type 21 Period II. It has a short rim, and sharp ledge to rest on the top of a narrow necked pot and deep base. Of fine fabric, it is well fired and treated with a very thin grey slip. Depth 11-25 cms from ADG-1.

**Type-42 :** A fragmentary bottle-necked flask of grey ware with a slightly everted and externally thickened rim and elongated narrow ribbed neck. Of fine fabric, it is well fired and carries a grey wash on the exterior. It is distinguished by a stamped decoration of oblique lines on the two ribs and small circles on the top of the shoulder zone. From the top levels of ADG-1.

**Type-43 :** A thick conical bowl of grey ware with pedastalled base. Of coarse fabric, it is burnt black in section and is devoid of any surface treatment. The soot-stained interior indicates its use as a lamp. Depth 26 cms from ADG-12.

**Type-44 :** A red ware, burnt grey, lamp type, whose mildly concave base is distinguished by a perforation perhaps for a wick. Although wheel-made, the luting of the base with the body has been left unfinished. Of medium to fine fabric, it could have been fired to red hue with a little more oxidisation in the kiln. Depth 24-40 cms from ADG-1.

**Decorated sherds :**

But for the stamped decoration on type 42 the remaining are incised before firing on grey ware. Most of the decorations are carelessly executed and appear on the shoulder zones of the carinated vessel. Surprisingly no red ware sherd bears incised designs. Instead two examples of paintings, one white-on-red and the other red-on-red are available. (Fig. 21).

I. A grey ware fragment with a carinated shoulder. Of coarse fabric, it is burnt black in section and treated with a light black slip on the exterior only, which has incised wavy line above carination. Depth 30-56 cms from ADG-12.

II. A shoulder fragment (comparable to Type-25 of Period II of a grey ware pot of coarse fabric. It is well fired and treated with a light grey slip on the exterior. It has incised oblique strokes between a groove above and a wavy line below. Depth 30-40 cms from ADG-12.

III. A red ware medium sized pot fragment of coarse fabric. It is burnt grey in section and treated with a red slip. It is painted in white consisting perhaps a row of circles. Depth 3 cms from ADG-12.

IV. A small shoulder fragment of a grey ware. Of medium fabric, it has a wash of the same colour on the exterior, and is decorated with a few incised lines of well executed oblique strokes. Depth 30-32 cms ADG-1.

V. A tiny sherd of a red ware globular pot. Of medium fabric, it is burnt grey in section and treated with a yellowish red slip containing mica dust. It is further distinguished by a wavy design painted in bright red. From the topmost deposit of ADG-12.

VI. A body fragment of grey ware vessel with a carniated shoulder and almost vertical sides. Of coarse fabric, it is burnt black

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in section and appears to have been treated with a light grey slip. It carries stamped decoration of triangles beneath the oblique strokes. It perhaps had some more designs as is indicated by a pair of grooves obliquely drawn below the triangles. Depth 8 cms from ADG-12.

VII. A shoulder fragment of grey ware of medium fabric. Well fired, it has a smoothened interior and mildly black, slipped exterior, which also carries incised oblique strokes below the groove and above the wavy lines. Depth 20 cms from ADG-12.

## B. OTHER ANTIQUITIES

### (i) Beads

In all six beads have been recovered in the excavation. Four of them are from ADG-12 and one each from ADG-1 and ADG-1B. Except one, which is of terracotta, all are made of stone. Two beads are on jasper and are unfinished, while two are on banded agate and one of rock crystal. These beads have been picked up from the depth of 14 to 35 cms. Most of the beads betray Early Historic assemblage. (pl. 16).

**Type-1 (bead No. 3):** Banded agate, standard cylinder neatly pierced and broken. It has three white bands and a wavy band around. It is of Early Historic assemblage. From the depth of 35 cms in ADG-12.

**Type-2 (bead No. 4):** Jasper, long cylinder. It is unfinished and broken. Ear lobes of this material and finish have been found from several Early Historical sites particularly from Central India. It could safely be dated to the pre-Christian era. From the depth of 26 cms in ADG-12.

**Type-3 (bead No. 2):** Banded agate, short oblate. From the depth of 30 cms in ADG-1.

**Type-4 (bead No. 1):** Rock crystal, roughly short bicone, irregularly shaped. From the depth of 14 cms in ADG-1.

**Type-5 (bead No. 5):** Jasper, circular and unfinished. It has a band around two third of its body. From the depth of 35 cms in ADG-12.

**Type-6 (bead No. 6):** Terracotta, pear-shaped. Also of Early Historic association. From the depth of 26 cms in ADG-12.

### (ii) Stone objects

Four mace heads and a fabricator were obtained in the excavation and most of them come from ADG-1. They are made of coarse quartzite. Such mace heads have been found at Neolithic sites like Burzahom and Anantnag in Jammu and Kashmir and in Andhra Pradesh. (pl. 17).

1. A thick elliptical fragment with a circular hole. Depth 23-41 cms ADG-1.
2. Probably egg-shaped with a circular hole. Depth 36 cms in ADG-1.
3. On a coarse stone with a circular exterior. From ADG-1.
4. A fine-grained and well executed specimen of smaller size. From ADG-1.
5. A flat pebble with partly damaged ends. Fine-grained. Depth 0.26 cms in ADG-12.

### (iii) Iron objects

Nearly ten iron objects, mostly nails and an arrow head, have been found in the excavations. Only eight of them have been

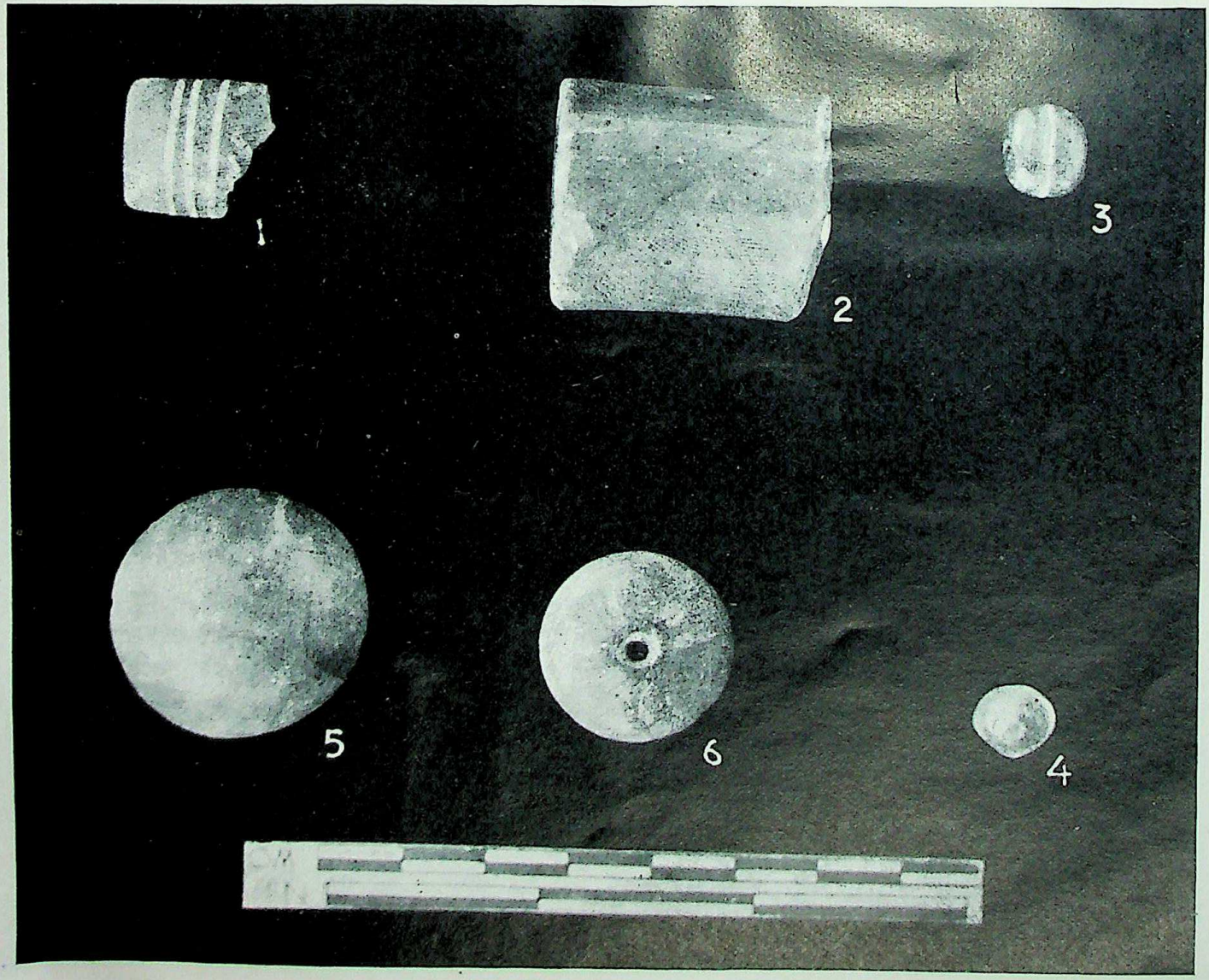


Plate 16. Adamgarh Excavation : Beads

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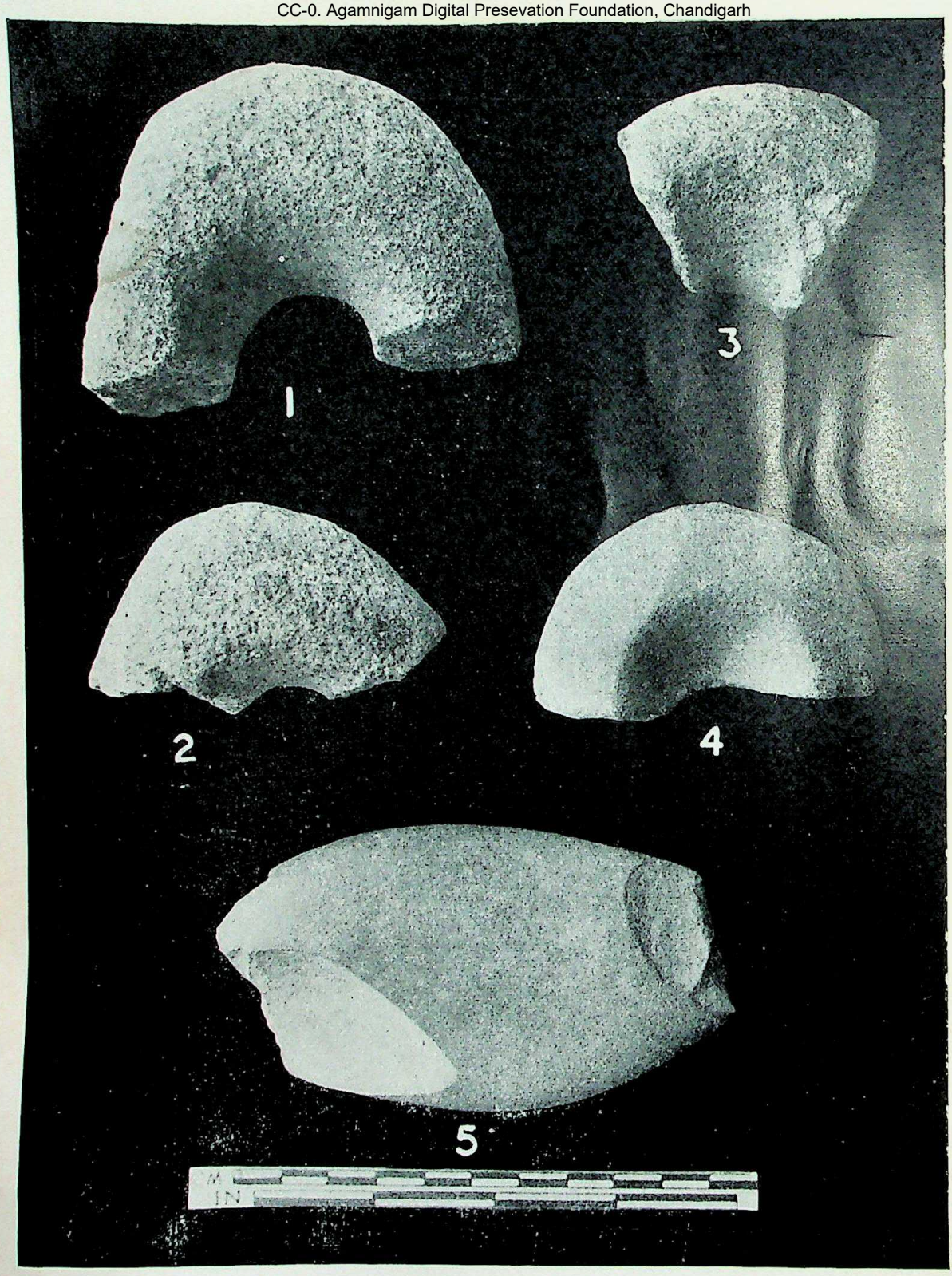


Plate 17. Adamgarh Excavation : Stone objects

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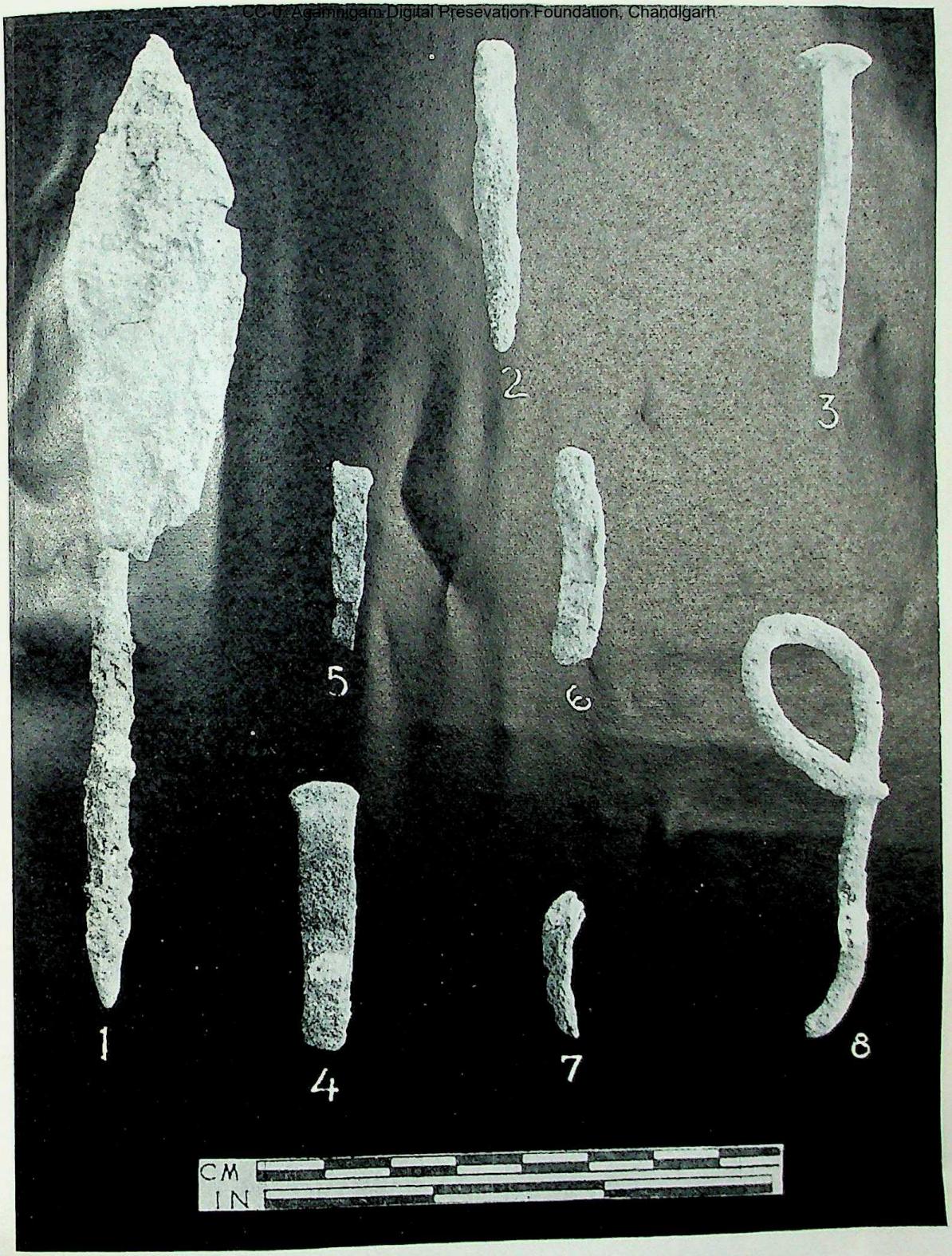


Plate 18. Adamgarh Excavation : Iron objects

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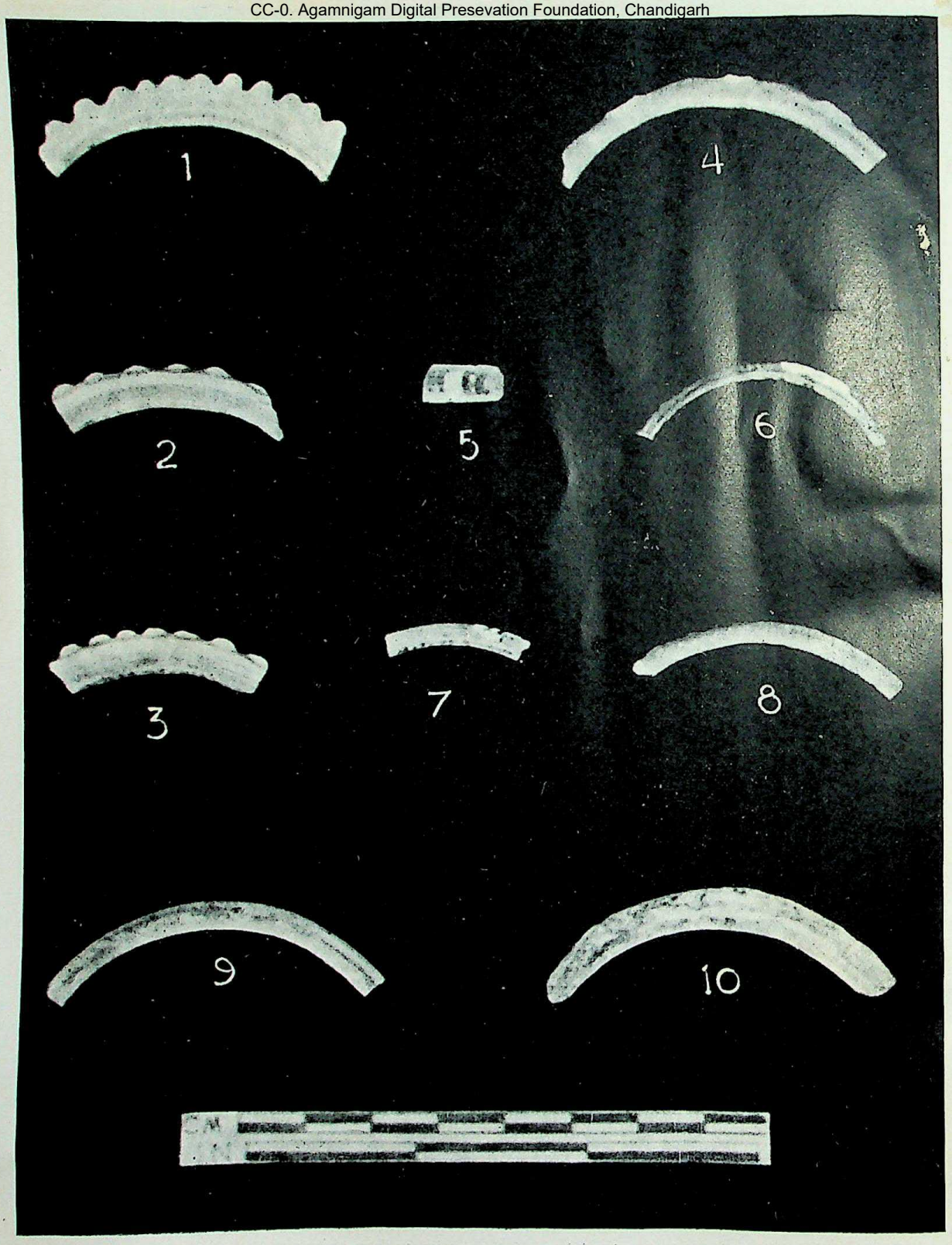


Plate 19. Adamgarh Excavation : Bangles

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Plate 20. Adamgarh Excavation : (a) Coin (b) Perforated disc

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illustrated here. The remaining pieces are too fragmentary. The leaf-shaped arrow-head is the most interesting of all objects. Such arrow heads are found at a number of ancient sites all over India, and they could easily be dated to a few centuries before the Christian Era. (pl. 18).

1. Tanged-arrow head with a spike of circular section. Depth 3-22 cms in ADG-12. Analogues come from Prakash, Maski, Brahmagiri, Nevasa, Maheshwar and Navdatoli, Eran, Besnagar, Hastinapur, Atranjikhera, Taxila, Pandu etc.
2. Possibly spike of an arrow head with a circular section. Depth 11 cms, ADG-1.
3. Nail of a rectangular section with a flat rectangular head. Depth 3-22 cms, ADG-12.
4. Nail with a damaged top and square section. Depth 11 cms, ADG-1.
5. A nail fragment of a rectangular section with damaged top.
6. A nail fragment with a rectangular section and damaged top, similar to No. 5. From ADG-1.
7. A small fragment probably of a spike with a pointed base. From ADG-1.
8. An iron rod fragment with folded ends and of indeterminable use. Damaged at both ends. Depth 3-11 cms ADG-1.

### (iv) Bangles

There are 44 bangle fragments made of glass and lac. No other material like ivory, terracotta has been used. All of them appear to be of a later period. Quite a few have studs around the outer surface. As a rule the glass bangles are opaque, but one of them is translucent. A few are described below : (pl. 19).

1. Fragment of a purple green coloured lac bangle of double convex section having a light yellow slip and carrying studs round the outer edge. This type is available in a number of excavated sites of Early Mediaeval Period. From ADG-12-depth 26 cms.
2. A grey coloured bangle fragment of lac, almost of square section. It carries subdued yellow studs over the red rib on its outer edge. The surface below the red rib is partly treated with a yellow slip. From ADG-12, depth 26 cms.
3. It is akin to type one, but differs in being smaller in size. From the same levels as type one and two.
4. A glass bangle fragment of circular section distinguished by the decoration of hollow oblong studs of blue, yellow and green colours on its outer edge. From the same levels as above.
5. A tiny fragment of glass bangle of rectangular section having multicoloured exterior. From ADG-12.
6. A thin bangle fragment of glass with a triangular section. Devoid of any decorations, it comes from ADG-12.
7. A tiny fragment of a thin bangle with a triangular section and of brown colour. From the same trench as above.
8. A glass bangle fragment of oval section and light blue colour carrying the impressions of studs on its outer edge. From the depth of 22 cms.
9. A glass bangle fragment of rectangular section and light blue colour carrying a dark tan slip on its outer face. Depth 30 cms.

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10. A thick bangle fragment of translucent glass of light brown colour. From ADG-1, depth 30 cms.

**(v) Perforated discs.**

Only two perforated terracotta discs have been discovered in the excavations. They were probably used as spindle-whorls. Such discs are available from almost every excavated site and have a wide range of distribution in different periods. (pl. 20).

Both the pieces described below are prepared out of broken sherds with their outer edges rubbed and the perforations neatly executed in the centre.

1. Grey ware sherd of coarse to medium fabric. Sand particles have been mixed in the paste. From ADG-12. Depth 8 cm.

2. A small red ware fragment treated with a light reddish brown slip on the exterior and burnt grey in its core section. From the same level as the above.

**(vi) Coins**

A solitary thick copper coin of the pre-Mughal Period was recovered from ADG-12 at a depth of 14 cms. It belongs to a Tughalaq ruler. Shah(?). (pl. 20).

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